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D. M. Campbell, Editor **A. T. Kinsley, Associate Editor**

The average distance haul is 200 miles for the milk used in New York City. For fruits and vegetables the average distance haul is 1,500 miles for the same city.

Lamb dysentery, a fatal malady of lambs according to a report of Dolling and others (*Jour. Comp. Path. and Thera.*) may be controlled by the use of an antiserum containing B. Welchii toxin—antitoxin and a B. coli vaccine. This indicates that lamb dysentery is probably due to infection with B. Welchii and B. coli.

Two bills to prevent cropping the ears of dogs are pending in the Massachusetts legislature, both sponsored by the Massachusetts S. P. C. A. One of these bills is designed to make it unlawful to own a dog cropped after September 1, 1928; the other to prohibit the exhibiting or showing of a cropped dog whelped after September 1, 1928.

A bill providing for the use of dextrose in mixed food products on a parity with cane sugar is now before Congress. If enacted, it will provide a new market for at least 20,000,000 bushels of corn annually, replacing to this extent an imported article with a domestic product. There is no objection to corn sugar for such purposes on the grounds of purity, wholesomeness or nutritive qualities. The bill should be enacted. It is known as S. 2806.

The United States Department of Agriculture has inaugurated a program of research into the diseases of fur producing animals. The work is under the direction of Dr. J. E. Shillinger of the Bureau of Biological Survey and Dr. R. G. Green of the department of Bacteriology and Immunology of the University of Minnesota.

An Experimental Rabbit Station has been established by the U. S. Department of Agriculture at Fontana, California, in charge of D. Monroe Green of the Bureau of Biological Survey. The rapidly increasing importance of the rabbit fur industry amply justifies the establishment of this experiment station, to help the industry in the solution of its problems.

When the Hamburg-American liner *Cleveland* sailed out of New York Harbor on December 6, 1927, it carried a large consignment of fur-bearing animals, valued at $150,000. They were destined for fur farms in Austria, Czechoslovakia, Finland, Holland, Lithuania, Poland, Belgium, and Switzerland. The live cargo consisted of 1,200 minks, 150 silver foxes, 12 raccoons, and 42 muskrats. The export of live animals from American fur farms is a new development in the fur industry. By sending experienced attendants with fur animals ocean shipments may be made without serious losses.

To the Veterinarians of the United States and the Dominion of Canada:

As president of the American Veterinary Medical Association, I am taking this means of coming to you, with a message. As you know, it is physically impossible for the president of our ossociation to attend all the different state and provincial veterinary association meetings. Then again, if this were possible, still there are many good men in our profession who do not even see the necessity of attending their state association meetings.

Veterinary medicine is today on trial as it has never been before in the history of the profession. There are from time to time, agencies springing up that attempt to tell people that their service is as good as that of the veterinarian. Few people realize or appreciate that if it were not for the services of the veterinarian, infectious and contagious diseases to which our domestic animals, including poultry, are heir, would be so prevalent that the profitable production of live stock would be next to impossible. It is up to the veterinarian to keep his service to the live stock interests at such a high standard that these outside interests will be unable to say to the owner of live stock, we can serve your needs as well as the Veterinary Profession.

There is no other organization in existence that will help the veterinarian keep in touch with all that is important to the profession and the individual veterinarian as well, as the American Veterinary Medical Association. Membership in this association will give you a more or less intimate acquaintance with the very best there is in veterinary medicine. The best men in the profession are in our ranks. The fact that a veterinarian holds membership in the A. V. M. A. gives him a prestige that he can get in no other way. The Journal of the association, which comes monthly to each member, keeps him in touch with the progress made in the field of research, as well as the latest methods of treatment and disease control.

There never was a time when it was more important for a veterinarian to hold membership in The American Veterinary Medical Association than right now, the larger our membership the stronger will be our influence against interfering agencies.

If you are a member will you not get in touch with your fellow veterinarian who is not, and urge him to become a member—procure his application for membership. If you are not a member, I urge you to write to the secretary, Dr. H. Preston Hoskins, 716 Book Bldg., Detroit, Michigan, or to me, and ask for an application blank, to become one of our number and receive the benefits of this, the best and largest veterinary organization in the World.

Fraternally yours,

REUBEN HILTY,

President, American Veterinary Medical Association.

624 Huron St.,
Toledo, Ohio.

Introcid in Bovine Practice

By H. J. MAGENS, VMC. V. S., Kerrville, Texas

IF ONE reviews the European contemporary literature with regard to the uses and indications of Introcid in solutions and ointments, one cannot help but be surprised and perhaps even become skeptical at their large number but if one understands its inception and its forerunners as well as the history of its development and if one thinks in terms of chemo-therapy then one will readily see the many different indications and uses for this new drug. Prof. Ehrlich's dream of a *Therapia Magna Sterilisans* and the many medicinal agents contributed by him, such as Salvarsan, etc., gave the basic thoughts leading to the development of this drug introduced to the medical and allied professions by Prof. Pfeiler, Jena.

In the light of Ehrlich's theory the field of indications for Introcid is inexhaustible. It will act specifically, where bacterins, antisera, sera, vaccines and sero-vaccines will exhaust one's patience. Its irritable influences will stimulate cellular activity; thus increasing and stimulating resistance. Wherever the cumulative action of an iodin compound is wanted there it ought to be the drug of one's choice. The product is bactericidal in action and will abort bacterial growth and development. In the following an attempt is made to describe some of our experiences with it in the field of bovine pathology.

The *first* case we used Introcid on was a very severe case of septic metritis and cervicitis combined with a suppurative interstitial mastitis of the most grave aspect. The subject was a Jersey grade cow, aged 5 years. The general condition of the animal was very poor. Temp. 104.6° F., respiration labored and evidently painful, still no pathological respiratory murmurs were heard, visible mucous membranes pale and jaundiced, pulse intermittent, hard and wiry, animal's coat was dry and lifeless.

The condition of the udder was, as stated before, very grave. All quarters were very edematous partly doughy, heavily infiltrated with pus, surface temperature high in spots and in other places lowered. The teats issued a cream-colored stringy pus yellowish in color.

There was a copious discharge of bloody, stringy pus-like material from the vagina. Manual exploration revealed partial retentio secundiarum and a very severe cervicitis and metritis.

Diagnosis: Septic metritis and cervicitis and suppurating interstitial mastitis.

Prognosis: Very guarded and not encouraging.

Treatment—Subcutaneously: Camphor in oil.

Intravenously: Sol. Introcid 15 mil Aqua dest. 15 mil.

Per os: Aloes. Barb. pulv. Hydragyrum chlor. mite., Ac. salicyl., Mag. sulph. several gallons of water, lukewarm.

Ad partes: Tinct. Iodi, Camph. trit. 01. Lini.

Intrauterine: Lavage with chlorin and saline sol. until returns were clear. Uterine capsules (Sodii perborate, Sodii bicarb. Sacch.)

The above treatments were continued for three days except that the dose of Introcid solution was increased daily by 2cc. plus the corresponding amount of distilled water.

The udder became harder at first, but then commenced to discharge freely, the surface tension became less and the surface temperature became normal and even throughout. The doughy infiltration slowly yielded and the udder became normal in size.

The appetite gradually increased, still water had to be given daily for several days via the stomach pump.

From the fourth day medication was changed to: Gentian. pulv. Nuc. Vom. pulv. Ac. Salicylici. Subcutaneous inj. Camph. in oil discontinued. Maximum dose of sol. Introcid of 20cc. in an equal amount of distilled

water was given daily up to the sixth day and then discontinued.

Uneventful recovery occurred.

The *second* case presented was a very severe case of suppurative mastitis partly due to traumatism (gunshot) coupled with a retentio secundarum and the ensuing metritis. The subject was a purebred Holstein cow aged 4 years. The general condition of the animal was only fair. The temperature 105.1° F.; respiration was labored and evidently painful, no pathological respiratory murmurs; visible mucous membranes pale and jaundiced; pulse very irregular, hard and wiry; animal's coat harsh and dry; mucous discharge from nostrils; expression of eyes stary and glassy.

The condition of udder was very grave. All quarters were doughy and heavily infiltrated, surface tension marked, on right hindquarter spot of size of hand hot, painful to touch, and revealing fluid pus under it. Discharge from the corresponding teat, was a bloody pus.

The vagina revealed lacerations due to forced extraction of the fetus before our arrival and a copious discharge of a bloody, pus-like character at times stringy. Manual exploration revealed partial retentio secundinarum, metritis and a small tear in the cervix.

Diagnosis: Suppurating, traumatic, interstitial mastitis, simple metritis.

Prognosis: Unfavorable with regard to the udder otherwise fair.

Treatment—Subcutaneously: Strych. sulph.

Intravenously: Sol. Introcid, 15 mil aquae dest., 15 mil.

Per os: Formalin, sodium hyposulphite, nuc. vom. pulv.

Ad partes: Tinct. iodi., tinct. opii., petrolati liqu.

Intrauterine: Lavage with chlorin disinfectant, manual removal of parts as indicated, until return flow cleared. Uterine capsules as before.

These treatments were given for two days. All medications except to parts and Sol. Introcid cum Aqua dest. intravenously then discontinued.

These treatments were given for four more days and discontinued. Uneventful recovery. The hindquarter of the udder atrophied. Due to terrible condition of the entire udder this result is little short of marvelous.

These two cases were selected for their severe and seemingly hopeless character. The results amply justified the efforts.

We used the drug in solution in five more cases and had coupled with internal and external treatment to the affected parts very good results. We cannot help but feel that the drug will prove valuable for others in working under similar conditions where stock vaccines or sera will not answer or where so much valuable time is lost until the proper biologicals (autogenous) can be obtained. We do not agree with the European investigators as to the doses, we have had better results with much larger doses than are advocated by them. They will be tolerated without any ill-effects whatever.

The next series of selected cases deals with another subject namely mixed infections of the uterus, vulva, vagina, the tubes, etc. All these cases have been treated simultaneously with bovine abortion bacterins (mixed) and bovine abortion vaccine (living cultures). All of these cases were treated immediately after parturition or abortion by uterine lavage and if needed by manual removal of the placenta. All cases began with loss of appetite, slight elevation in temperature and more or less pronounced discharge from the vagina.

Case 3. Jersey Grade Cow. Condition very good; age, 8 years; temp. 100° F. Respiration normal; visible mucous membranes normal; heart normal; pulse normal; coat stary and dry; condition of udder normal; appetite poor; ruminatory sounds normal; milk production lowered considerably; slight muco-purulent discharge from the vagina.

Diagnosis: Pyrometra, possible ovarian tubular involvement.

Prognosis: **Fair.**

Treatment—Per os: aloes Barb. pulv., calomel, nuc. vom. pulv.

Intravaginal: Capsules ½ oz. as in cases 1 and 2.

Subcutaneously: Sol. Introcid, 10 mil aqua dest., 10 mil.

The subcutaneous injections were given these cattle every second day until five injections had been given.

All these cases, five in number, responded except one older cow, which persisted in showing a mucous vaginal discharge. In this case the cow was given a daily lavage besides the uterine capsules and the dosage of the introcid sol. was doubled. She showed a marked improvement after the seventh injection.

All cases were bred promptly and so far have not shown any symptoms of failure to conceive.

The result in these cases was gratifying since it offers a solution for the treatment of those cases where the use of bacterins and vaccines have only a limited success for some reason. Autogenous vaccines are to be desired, of course, but will our clients pay for them and especially will they wait long enough and take chances on negative results due to improper cultures, etc? Distances are long in this locality and much time is consumed in transit. The third series of cases shows a general infection. The subject selected for presentation was a Jersey male, registered, age 5 years. General condition of animal fair; temp. normal; resp. normal; visible mucous membranes pale; ruminatory sounds sluggish; Pulse normal; appetite poor; expression of eyes tired; coat stary and dry. Examination revealed several abscesses in lower part of the sheath. They were partly hard and painful to touch; partly soft and discharging pus.

Diagnosis: Multiple furunculosis in region of sheath.

Prognosis: Good.

Treatment — Subcutaneous injection of Sol. Introcid at the point of sheath and posterior to the abscesses. 30 cc. of the Introcid solution mixed with 30 cc. of distilled water was the amount injected.

No other treatment was given. The Introcid injection was repeated in three days and again three days later.

The appetite became normal and all lesions were dried up after the third injection.

The other cases of this class were similar in character. All yieided to treatment as did the subject selected for description.

Conclusions. After the experiments described above we consider Introcid in solution a valuable aid in such conditions. Of course due to the small number of cases described the experiments are not conclusive but they show the way for rational treatment of some conditions where biologicals fail to give entire satisfaction.

VETERINARY PRACTICE VIEWED THROUGH ROSY'S COLORED GLASSES

Doctor Mayo has suggested that we report humorous occurrences in our practices. I have enjoyed very much the incidences he reported in this vein, and the reports of others brought out by his suggestion, and for that reason report the following experience of my own.

A number years ago I lived in a small town in western Kansas. It was during the summer vacation following my first term in a veterinary college and I became acquainted with the local veterinarian and became quite friendly with him.

I was rooming just across the street from his office and one morning about 2:30, I was awakened by the fire bell. I jumped up in my night shirt, donned a pair of trousers and shoes and without socks or hat made for the fire, which was Doc's auto across the street.

A farmer 11 miles out in the country, had a very sick horse and as they could not get Doc over the phone, a neighbor had come after Doc and while Doc was filling the gas tank in his car, it blew up, half ruining the car and also Doc's complexion so badly that he was put immediately under a physician's care.

Doc, knowing my aspirations, told the man to take me out. So dressed as I was in my night robe one of Doc's hats that came down over my ears, and a broad smile I grabbed Doc's medicine case and a few dental instruments and climbed into the car; then we went sailing

through the balmy fragrant breeze of an ideal Kansas morn.

I felt very highly elated and thought, "Gee, this is easy picking." The twinkling stars, the waning moon, and the fresh soft breeze, the aroma of a good cigar, the light chuc chuc of the machine as we glided over the sand gave me a sort of a pipe dream of the future. I could see my fancy horses, high bred dogs, automobiles, a happy home, and all sorts of luxuries for I had been led to believe that there was nothing to the veterinary business but a bold front, a clean shirt, a dose of aloes, and you'd simply coin the money.

I began to wonder what I would give that horse when I got there as I did not know one drug from another and none of them were labelled in the case anyway. So I decided to give a pill no matter what the disease was, as I'd seen Doc give them and they never seemed to hurt the animal.

Pretty quick we rolled into the yard and I made for the horse, a lantern in one hand and the medicine case in the other. I found a four-year-old bay gelding, 1,200 lbs., laying stretched out apparently dead, but presently he rolled, tumbled and went through so many antics that I decided he had the bellyache in any case, and perhaps something else. The horse had been worked up to the preceding noon and coming in drank heartily, ate about half his feed, and became sick. He had urinated a couple of times in the afternoon, and the bowels had moved. The horse had been fed on dry cane and kaffir corn for roughage for the last week.

I listened over his side and heard a noise as if something was too tight in there and I knew things were not working right, as I'd listened to other horses. The temperature was normal, respirations very fast, and heart was extra fast. "Doctor," said the owner and I swelled appreciatively, "What do you call it?" I told him it was a very severe attack of impaction colic. He said that he had told his wife that was what was the matter, and he had also decided that all the medicines in four counties would not save the animal.

I made for the medicine case and got two boluses and grabbed the horse's tongue with my left hand, he grabbing me by my right. In getting out I left the bolus behind and also about two inches of skin off my middle finger. He promptly spit out the pill. As the owner did not see the pill drop, I promptly tied my shoestring and rescued the pill from the cold damp ground.

The dazzling future now began to lose its dazzle. My fancy horses faded to lousy bronchoes, my high-bred dogs looked like half starved curs, my autos were faded to bicycles with one punctured tire, my luxurious home like a hencoop. I grabbed a speculum, put it on and forced a pill with success.

Mr. Owner thought the horse in too much pain so I thought a hypo was the proper thing. I knew morphin would stop pain but there was none in the case so I took the first thing I came to, which happened to be strychnin. I gave one tablet which was a grain but it did not relieve the pain (I did not know why). I explained it would be some time before the medicine would act so my client went into the hay and I went over with the neighbor who had taken me out to dress some mouths.

At seven o'clock when I returned the poor horse was rampaging around that pen like a wild hyena. I gave a rectal injection, another pill. Afterwards I found out these pills contained six drams of aloes and two drams of oil of eucalyptus and told the owner on account of the solid condition of the food in the guts (I didn't know about the intestines then), it would take all day to wear off so he took me back to town.

Eventually the horse died but perhaps the up-to-date treatments of today would have saved him; perhaps not.

Larned, Kansas. E. C. Baker.

Some Observations on Hemorrhagic Septicemia in Transit Cattle *

By D. B. PALMER, Minneapolis, Minn., and
I. O. BURINGTON, South St. Paul, Minn.

THE authors of this short paper are not endeavoring to offer you a thorough treatise on this disease, but as the title indicates merely to offer for your information some of their observations and experiences with hemorrhagic septicemia as they have encountered it in transit cattle.

As is well known, this disease attacks most of our domestic animals and fowls, but we are discussing this disease as it is in cattle, especially cattle in transit.

The causative organism of this disease is a micro-organism that is known generally by the fact that it stains with a peculiar bipolar effect and so it is called Bacillus bipolaris. Different authorities name the organism by other terms such as Bovisepticus, Pasturella, Bulba-septicus, etc.

The organism is widely distributed over the face of the globe and it has been reported and isolated in every state of the Union, most of the provinces of Canada, Europe, Asia, Africa, Australia, South America and the various Islands of the Indies.

We would like to state now that the virulency of this organism varies to a great degree, and it is our opinion that this variation has considerable effect on the clinical picture that is seen in this disease. We do not know how long this organism will live outside the body of an animal, but we do not think that it will exist very long in the soil or around buildings, etc., unless there are animals there to keep it alive.

Hemorrhagic septicemia occurs in many forms clinically, such as the pneumonia type, intestinal type and as a nervous type. We have seen many cases but so far have seen none of the so-called nervous type except in conjunction with either the pneumonic or intestinal types. The disease also occurs as an acute, sub-acute and chronic infection.

The preceding part of this paper is written to call your attention to hemorrhagic septicemia in a general way, and now we will confine our remarks to the disease as we have met with it in transit cattle.

The first point we wish to make is the wide distribution that this organism has in the United States and Canada, therefore, it is obvious that when cattle change their location, or are shipped or moved from one part of the country to another they will in all probability come in contact with the causative agent. One of the writers has seen this disease break out in a shipment of show-cattle that were shipped in box-cars, without unloading, and their own attendants and feed in the cars. This bunch of animals never saw the inside of a railway stock yards and still picked up the disease.

We are firmly of the opinion that the method of handling and feeding of transit cattle has a distinct bearing on the susceptibility of the animals to infection, and that weather conditions are of great importance. The length of time in transit, number of times loaded and unloaded, degree of crowding in the cars all have an influence on the susceptibility of the animals to this infection. Wet weather, either cold rains or snow, or hot spells freely interspersed with rains, will bring more cases of this disease than do dry cold or heat.

Another factor that influences this disease is the degree of fatigue to which the animal is subjected. Even if the weather is good but the animals over-fatigued they will succumb to this infection very easily. Very abrupt changes of diet will increase the number of cases. In other words anything that causes a debilitating condition in the animal

* Read at the annual meeting of the Minnesota Veterinary Meeting, Jan. 12-13, 1928.

produces a favorable field for the infection to get a foot-hold.

Treatment

This is both curative and prophylactic. The remedies offered are chiefly biological and are said to be curative as well as prophylactic. They are hemorrhagic septicemia bacterin, hemorrhagic septicemia aggressin and hemorrhagic septicemia serum. As curative agents we have found no value in either the bacterin or the aggressin, and only a limited value to the serum. However, we are continuing our experiments with the serum with the idea that it may prove to be more valuable than we have so far found it to be.

As prophylactic agents we have found all of these agents of some value. To produce a more or less permanent immunity we have found the aggressin to be an excellent agent, and the bacterin to be not quite so reliable. The serum produces only a passive immunity but we think that this is sufficient for use on transit cattle. We are of the opinion that if cattle were vaccinated with either agressin or large doses of the bacterin before they left the home farms or ranches that few or none of them would pick up the infection when placed in transit. This vaccination should, however, be done not later than two weeks before shipping. If this vaccination can not be done before shipping takes place, we recommend that immediately on arrival at destination, even before going to owners' farm that a good sized dose of serum should be used on transit cattle. This may be followed later with vaccination with aggressin.

We wish to emphasize at this time, however, that biologics are not perfect remedies. We are satisfied that careful feeding, watering and rest are essential if animals are to be shipped without loss from this disease.

We would like to tell you that it is our opinion that all animals that have been recently transported from one place to another, whether by train or truck, through stockyards or not, they should be considered as exposed to this infection and therefore should be treated and handled as such by their owners.

When owners or your clients go away to buy cattle, we would suggest that you advise the vaccination of the cattle on the home farms before they bring on the new animals.

Large Dose of Bacterin Valuable

We have a few case reports and statistics that we have picked out of our records that might be of interest to you.

According to our observations during the past year the mortality rate among cattle showing noticeable symptoms was about 27½ per cent, even when the animals received very good care; 45 cases were treated with bacterin, 11 died or approximately 24 per cent. These animals received 2 c.c. daily until they showed signs of improvement or had relapsed to a very unfavorable prognosis. Ten selected cases in the advanced stage of the disease were treated with serum, five recovered, five died. These animals received from 50 c.c. to 150 c.c. of serum intramuscularly, given to them in 50 c.c. doses every other day.

During the last three months we have increased the dose of bacterin from 2 c.c. to 5 c.c. for prophylaxis and from reports from cattle owners we are satisfied that a vast improvement in this phase of our work has occurred. Based on a total of 10,000 head of cattle very few losses from hemorrhagic septicemia have been reported.

We have used some serum during the past few weeks as a prophylactic agent on transit cattle and so far the results are very gratifying, but we do not recommend it as a specific.

Case Reports

Lot 1—On October 6, 1927, we injected two carloads of steers with serum. One load weights about 400 pounds receiving 35 c.c. and the other weights 800 pounds 50 c.c. These animals were shipped more than 1000 miles under the most adverse weather conditions, in dirty cars, very dirty yards in transit and were also delayed in transit, and the man in charge reported all the animals tired, hungry and very listless at destination; however, no death losses occurred and recuperation was very rapid.

Lots 2, 3, 4 and 5—These were carload lots injected with serum, shipped under

somewhat better conditions and no losses occurred.

Lot 6—This was a shipment of 300 head of cattle from Canada. These cattle were loaded in western Canada, first being trailed some distance to the railway in a severe snowstorm. They were then held at Moose Jaw for three days for an intradermal tuberculin test. The weather here was 15 degrees below zero and the animals were in open pens on hay and water. They were then reloaded and sent to South St. Paul. Nine were dead on arrival and two died in a few hours. The remainder of the animals were in a very poor condition, fully 50 per cent showing true symptoms of hemorrhagic septicemia.

Most of them had severe coughs, and many had temperatures from 103 to 105.5 deg. F. As soon as possible after arrival we treated all the living animals with serum, 300 lb. size getting 25 c.c., those up to 450 lb. getting 30 c.c. and those up to 600 lb. got 35 c.c. The day after vaccination no improvement was seen, but during the next three days a great change for the better was seen, the fifth day the animals were normal.

Lot 7—Thirty head of cattle were purchased from the yards by a local farmer. These cattle were 29 heifers and one stock bull. These animals were tuberculin tested at the stockyards before hauling by the subcutaneous method, so we knew that they had no fever. For one week after arrival at the farm the animals seemed O. K. to the owner but then they started to go off feed. He loaded three of them up and brought them to South St. Paul, where they were killed subject to inspection. One was condemned for pneumonia. Two days later five more were so sick that we were called to give advice and treatment. After examination of the lot we diagnosed hemorrhagic septicemia and gave the nine bad ones 35 c.c. of serum, intra-muscularly. The other 18 as well as one cow and two heifers on the farm were treated with 5 c.c. of bacterin. The owner has since advised us from time to time that all rapidly recovered, except one of the native farm animals. This animal became sick one week after vaccination with the bacterin and soon died. Postmortem showed hemorrhagic septicemia, pneumonic type.

In closing this short paper we wish to tell you that all animals that leave a public stockyards and become sick are not infected with hemorrhagic septicemia, but if you are called to treat them be sure and keep in mind that they have at least been exposed to this infection and should be treated accordingly.

DIFFICULT BREEDING IN HEIFERS

I have under observation a two-year-old Jersey heifer. The owner had her bred five or six times and she fails to become with calf. I recently made an examination and find the os completely closed. The os is hard and firm and about an inch and a half in diameter, and by manipulation I would say about four inches in length. This all feels like a hard cartilagenous mass and with a lot of patience, and work, I could only introduce one finger about half an inch.

Kindly tell me what may be done if anything, to get this heifer with calf. I've had several such cases and as yet have had no success with them.—R. C. B., N. Y.

Reply: You must look further for the cause of the failure of this heifer to breed since you describe what is probably a normal cervix. You are evidently confusing the cervix of the cow with that of the mare when in reality there is very little analogy. It is safe to state that it is practically impossible to dilate a heifer's cervix to any extent without tearing it. It is true that there is dilation at the time of the estrual period but in the heifer surely not sufficient to introduce a man's finger. If one could pass a fine flexible probe through the cervix which we usually can, that is quite sufficient. We can readily understand this when we take into consideration that conception usually takes place in the Fallopian tubes, the caliber of which is not much larger than a horse-hair, so it should be an easy matter for the spermatazoa to wiggle their way into the cervix that will admit a small probe.

I have never found a virgin heifer's cervix that needed dilating except under very abnormal conditions such as we meet in free-

martin's. Then of course the cervix may be solid and dilating would be of no avail anyway. We very, very seldom find an atresia of the cervix in an older cow as a result of injury, either at the time of calving or when some careless one has injured the cervix carrying out rough methods in attempting to douche the uterus. An open cervix in an older cow except at the time of estrum, is proof that it is a diseased cervix.

It is true that the mare's cervix at the time of estrum is usually found so open that one or two fingers may be readily introduced and the cervix is so soft and flexible that it is easy to enter at any time, and hence when the empiric talks about "opening them up" it is with reference to the mare's cervix and not the cow's. It is true that they do talk about opening up the cow's cervix, but of course the layman is in no position to deny it and fortunately or unfortunately as you may wish to view it, there are cases in both the mare and cow when manipulation of any sort if reasonable precaution is taken to have the hands clean, may relieve some slight impediment or as it often happens, the so-called operation is carried out at the time the animal was ready to conceive.

I recall having examined two different mares at a stock-farm where they had been repeatedly bred; in the case of one for two years and the other for over three years. These mares had been bred to different stallions and one had been shipped from the Pacific Coast. My examination was to determine whether or not there was any use to continue the efforts to get these animals to conceive so the owners might be advised what to do with them. In the case of each animal, I did nothing whatever except make a careful examination. First, I examined the uterus, making sure the animal was not pregnant, and of course in doing so I had to maul it a bit as the non-gravid uterus of the mare does not lie in the pelvic cavity as is the case of the cow; then I examined the cervix and found it dilated. The ovaries and tubes were apparently normal or nearly so. Upon massaging the uterus there was no evidence of infection, that is there was no discharge. All I could say was that I did not know why the mares did not breed and that I could see no reason why they should not breed. So long as the stallions were giving satisfactory service to other mares, we could not blame them; these mares were bred a few minutes after I had examined them to different stallions and both conceived from this service. Now had an empiric had this happen, he would have sat up nights the rest of his life telling about it; stud-grooms and trainers would probably have talked about it for the next decade but because a regular licensed veterinarian who was supposed to have some knowledge of breeding troubles had principle enough to give his honest opinion, the thing passed without comment.

What you should do to get this heifer with calf is hard to say without an examination and might be equally as hard after we had examined her. In the first place, leave the cervix alone. Examine the ovaries, tubes and uterus. In the case of a virgin heifer, there is not apt to be much the matter with uterus or tubes. You may find cystic ovaries and in fact you are quite apt to and if so, they are probably due to nutritional imbalance. Many of our heifers today are raised in a semi-artificial manner; kept on high protein diet (skimmed milk) over a long period, and too often denied exercise, that is open paddock and a shed. If that is the trouble in this case, by massaging the ovaries and adding yeast and mineral to the ration, you can probably promptly correct the trouble.

It may be that the right ovary is not functioning and that you will find a corpus luteum in the left one. If so, let me remind you that we often find that a cow does not conceive from the left ovary as promptly as from the right. After you feel that you have her ready to breed, I would suggest that you douche the vagina and outer cervix with a hot alkaline solution (about 112 deg. F.) for a week or ten days before breeding. In many cases, douching alone is ample. This is a custom I have carried out with every pure bred herd over which I have had veterinary supervision, that is to douche each animal for a week or ten days before breeding. We find it a tremendous advantage.—J. F. DeVine.

Common Diseases of Poultry*

By F. G. FOLEY, Frankfort, Kansas

"DURING the past season, the total earnings of our flock of 150 birds amounted to $877.87; and our expenses were $425.87, leaving us a net profit of $452, which we think excellent considering the low prices that have prevailed during the past season."

The above statement was made by one of my patrons who finds poultry farming a paying proposition. Several years ago they told a different story due to the fact that disease crept into their flock, causing many losses. By proper medication and attention the disease was checked and figures soon began to appear on the profit side of the ledger.

There are many diseases common to poultry. I will consider only a few in this paper.

Coryza (Colds)

We find colds most common during the winter months; young birds seem to be more susceptible than the mature ones. While this disease of itself is not a serious menace to the flock, it may lead to a severe form of roup if not controlled.

Symptoms. The first symptoms usually noted are bits of straw and feathers sticking to the beak and nostrils. There is more or less mouth breathing and sneezing. The birds appear to be sluggish, comb may be pale, and birds have an unthrifty appearance. Some affected birds hold their heads up and gasp for breath because of the plugging of the nostrils by dried exudate. The eyes may be closed in many cases.

Treatment. This condition can best be considered as an infectious disease of unknown cause and should be handled as such. One of the chief predisposing causes of colds are drafts that strike the birds while at roost. This cause can be eliminated by proper construction of the poultry house, so that drafts are impossible and ventilation is proper.

The first step to be taken in the handling of a flock in which coryza appears is to free house and birds from lice, mites and worms. Give a dose of Epsom salt to the flock (a pounds to each hundred birds.) Remove the affected birds from the flock and treat their nostrils with a two per cent solution of potassium, permangate; one can do this by means of a medicine dropper or by submerging the bird's head in the solution from 15 to 25 seconds. This treatment should be applied at least twice a day. Sick birds should have an abundance of green feed until they recover. It should be impressed upon the flock owner that a cold is probably a contagious disease and may be transmitted from one bird to another through feed hoppers and drinking fountains. It is a good plan to keep a reliable antiseptic tablet in the drinking water.

Catarrh (Nasal Roup)

This condition is very similar to coryza but is characterized by a more chronic course and is more difficult to control. It usually results from a cold that has not been properly treated.

Symptoms. These are about the same as those seen in coryza but are of a more serious nature. The nostrils are plugged with a dried mucus and mouth breathing is a characteristic symptom. An offensive odor usually develops. This will depend upon the type of secondary invaders present.

Treatment. Isolation of sick birds, keeping them in a warm place and feeding carefully; clean nostrils with a two per cent solution of potassium permangate, twice daily. Correct all insanitary and unhygienic conditions of both house and birds. Keep a good antiseptic tablet in drinking water given to all birds.

Avian Diphtheria (Canker)

Avian diphthe · is a very serious disease of unknown caus which is common to all types of poultry, especially chickens.

Symptoms. Canker is characterized by the development of canker and diphtheric patches in the mouth, throat and sometimes

* Read at the annual meeting of the Kansas Veterinary Medical Association, Wichita, Jan. 4-5, 1928.

trachea. These vary in size and number. The lessions are covered by a yellowish membrane, which upon removing leaves a raw surface, and usually have an offensive odor. The bird may show symptoms of catarrh, wart-like growths on the skin, or ocular and sinus trouble. Mouth breathing is usually present. The birds appear pale, show lack of appetite and are unthrifty in appearance. There are occasionally symptoms of pneumonia; whitish diarrhea with high temperature and excessive thirst.

Post-mortem examination reveals a variety of lesions. Besides the diphtheretic patches found in the throat, larynx and sometimes trachea, the walls of the intestines are usually thickened and covered with ulcers. The liver may be enlarged and pale with yellowish areas on the surface.

Treatment. Sick birds should be placed by themselves and given individual treatment; houses and runs cleaned and disinfected. Free the birds and houses from all parasites. Badly affected birds should be killed unless they are valuable. Mild cases may be treated successfully by removing the membrane from the surface of the lesions by means of a wire and painting the raw area with a ten per cent solution of argyrol or tincture of iodin. Keep an antiseptic solution before the birds at all times to aid in preventing the spread of this disease. Great care should be exercised not to introduce this trouble with newly purchased birds, or birds that have been exhibited at shows. Such birds should be kept in quarantine for at least ten days before placing them with the flock.

Ophthalima (Ocular Roup)

This is one of the most outstanding diseases of the head, which affects the eyes and closely related surrounding tissues. The cause is unknown.

Symptoms. Ophthalima is characterized by its chronic course, peculiar bulging of the eyes and offensive odors associated with the latter stages of the disease. At first, there is a slight watery discharge from the nostrils and eyes. If the disease progresses, the discharge dries in the nostrils and the eyelids become glued together. The eye is swollen, due to the accumulation of exudate beneath the lids. When the lids are pulled apart a tough yellow cheesy mass protrudes.

Treatment. Sick birds should be placed in isolation pens and given a dose of Epsom salt about one pound per hundred birds. The eyes and nostrils should be freed from all exudate and treated with hydrogen peroxide to cleanse thoroughly. A few drops of five per cent solution of silver nitrate or a ten per cent solution of argyrol should be placed in the eyes and sinus twice daily until the condition is cured.

Botulism (Limberneck)

Botulism is a disease caused by a toxin of the micro-organism Colstridium botulinum types A and C, which are commonly found in spoiled foods or decaying carcasses of animals. This disease is characterized by a limber neck and is often called by this name.

Symptoms. The first indication of this disease is a sudden appearance of several cases of typical limberneck in the flock. This condition is caused by a paralysis of the neck muscles which let the neck hang limp. It must not be confused with wry-neck, found in worm troubles, where the neck is twisted or held to one side, but has not the limpness found in botulism. A bright red comb, rough feathers easily pulled out, and a limber neck are probably the most characteristic symptoms. Usually, a large number of the flock are affected at once and are found lying prone. When picked up they will utter a cry of pain. The temperature is usually subnormal. A watery or whitish diarrhea may be present. Often when a bird that is dead from this disease is opened and crop is examined a number of maggots, bits of spoiled decomposed meat, spoiled corn, and other foods that carry the toxic material is found.

Treatment. First of all, the cause should be sought and removed. The sick birds should be moved to a cool place and given a physic such as Epsom salt, a teaspoonful in about four ounces of water, or two teaspoonfuls of castor oil; the unaffected birds should be shut up and given a dose of salts. If a correct diagnosis can be made, botulism antitoxin types A. and C. mixed may be used

to prevent the well birds from getting this disease. In some cases, sick fowl can be cured with this antitoxin.

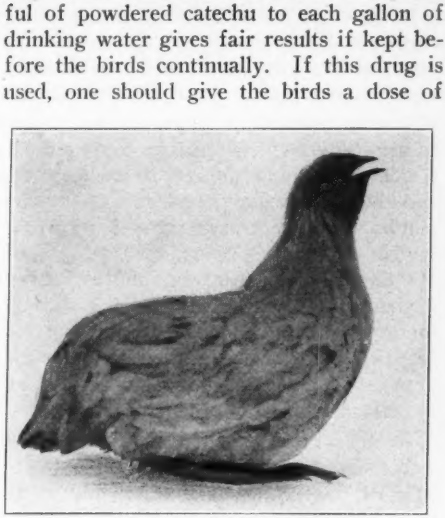
Coccidosis

This is a protozoan disease that is found most often in chicks from two weeks to four months of age. Old birds may also suffer from this trouble. The organism Emeria avium is the causitive factor of this disease and may live for years in the soil. It gains access to the body through food and water that become contaminated. Its action is primarily upon the mucus membrane of the cecum. Sometimes the liver and the rest of the digestive tract are also affected. After passing several cycles of its life history within the body of the fowl, the organism is voided in the droppings and may be picked up by other birds.

Symptoms. The outward manifestations of coccidosis depend to a considerable degree upon the age of the birds attacked. In young chicks, the disease develops rapidly and the mortality is high. The affected ones display the usual appearance associated with the debilitating internal disorders such as weakness, disordered feathers, droopy wings, bunched appearances, and loss of appetite. The droppings are semi-fluid and usually whitish in color, but may be a very fluid nature with brownish tinge. In acute cases in young chicks, the droppings are deeply stained with blood. In grown fowls, the disease usually assumes a more chronic type, although acute outbreaks may occur frequently. In an acute outbreak, the affected birds show a droopy appearance which is more or less characteristic. The comb becomes pale and the affected birds will isolate themselves from the flock. The appetite may remain normal or become ravenous at times. Leg weakness and paralysis are frequently observed.

Because of the close resemblance of symptoms of this disease and other diseases, such as worms or nutritional disease, a positive diagnosis can only be determined by microscopic examination of some of the intestinal content and finding the organism Emeria avium present.

Treatment. Treatment is very unsatisfactory in most cases. One-third of a teaspoonful of powdered catechu to each gallon of drinking water gives fair results if kept before the birds continually. If this drug is used, one should give the birds a dose of



A Pullet with Broncho-pneumonia.

Epsom salt, one pound per hundred birds, every ten days while treating them to overcome the constipating action of catechu. Bichlorid of mercury, one to 6,000 may be substituted for catechu. As a preventative measure, to keep this disease from the flock, rotation of the runs by moving the brooder houses to a new range each year, should be practised. In disinfecting the houses, one must keep in mind only the strongest disinfectants will act on the coccida and a ten per cent solution of cresolis is none too strong to use. Covering the ground with chlorid of lime or unslaked lime will help greatly in preventing the spread of this disease.

If each practitioner will give flock owners a little free information as how to prevent diseases from entering into their flocks he will soon have the poultrymen in his locality coming to his office.

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THE BACTERINS YOU USE

Bacterins, or bacterial vaccines as they are sometimes called, are made by suspending bacteria which have been devitalized or killed by heat or an antiseptic either in normal or physiological saline solution or in the culture medium, to which a suitable preservative has been added. Those bacterins made by suspending the bacteria in normal or physiological saline solution usually are standardized to contain a definite number of bacterial bodies in each cubic centimeter or dose. Those made by suspending the bacteria in the medium in which grown, however, are not standardized but consist of the undiluted culture.

Bacterins are classified into autogenous bacterins and stock bacterins. Autogenous bacterins are made from organisms obtained from the patient's own lessons, while stock bacterins are made from representative types of the organisms in question. Stock bacterins are generally polyvalent—that is, they contain a large number of different strains of the same bacterial species. Polyvalent bacterins are to be distinguished from mixed bacterins, the latter containing strains of different bacterial species.

In order to have a clear understanding of the scientific basis of bacterin therapy it may be helpful to consider the subject from the standpoint of our knowledge of anaphylaxis. Anaphylaxis concerns the effect of proteins of albuminous substances upon animals; it concerns all proteins whether they are poisonous in themselves or not. For instance, egg white and normal horse serum act precisely as the proteins of bacteria. Furthermore, the proteins of dead bacteria act practically in the same way as proteins of living bacteria. It must remembered, however, that anaphylactic symptoms can be produced only by proteins foreign to the animal. In its derivation anaphylaxis means a lack of resistance—it is the opposite of prophylaxis. However it has been shown that instead of being the opposite of immunity, anaphylaxis is merely one of its manifestations.

Many foreign proteins including dead bacteria or bacterins are injected into the tissues of an animal, the body cells at once set to work to remove this protein. They prepare a ferment or antibody capable of splitting the protein molecule into two parts—the one poisonous and the other non-poisonous. The poisonous part obtained from all proteins is the same whether it results from the splitting of egg white or the splitting of the protein of bacteria. The poisonous part is a poison and has no other function, and after the first injection is liberated slowly and is therefore harmless in its effect. The non-poisonous part, on the other hand, is specific in its action which stimulates the body cells to produce a large amount of a ferment or antibody-like substance capable of splitting the protein molecule of living bacteria of the same species as those involved. Thus an immunity is established of the active type.

It will now be clear that one of the requisites to success in bacterin therapy is that the bacterin injected must contain bacterial proteins identical in kind with those causing the infection. In other words, the bacterin must be specific. Hemorrhagic septicemia bacterin prepared by the use of Pasteurella bovisepticus, or hemorrhagic septicemia organism, for instance, is specific for infections caused by this organism, but it is not specific for infections caused by other species of bacteria.

F. A. Imler, in *The Bureau Veterinarian.*

BOVINE ACTINOMYCOSIS

Actinomycosis, formerly considered a rare disease of man, is being more and more frequently recognized. Sanford in 1925 collected data on 680 cases. The first case in man was reported by Lagenbeck in 1845. Murphy reported the first case in America in 1857. Men who associate with cattle have been known to acquire the disease but no authentic instance has been reported where the transmission of the disease was direct from animals to man. Infection comes from the ingestion of contaminated material, barley beards, straw, blades of grass, chaff, etc., the chewing of which is a prevalent habit.

Physical Examination of Dairy Cows

By S. L. STEWART, Olathe, Kansas

THE bulk of the wealth created in the Missouri River valley comes from livestock, grain, dairy and poultry products. Dairy cattle, which furnish the farmer a good market for both feed and labor, are producing milk at a reasonable profit, and butter fat, which is worth 10 per cent more than last year, is also bringing a reasonable profit.

In Johnson County, Kansas, which contains a part of the fine residence section of Kansas City, farmers gradually are turning toward dairy and poultry production. Johnson County has at the present time approximately 10,000 dairy cows and this number will be steadily increased year after year.

Seven years ago when I began to advocate extensive dairying in our county it was thought by our farmers, the county farm bureau and chamber of commerce that the market for milk and milk products would soon be over-supplied and a big slump in prices would be the result. Time has proved them to be wrong; the price has remained steady with a slight increase notwithstanding a big increase in production, which can be accounted for in two ways:

1—By the natural increase in the population of Greater Kansas City. The increase in population at the present time is about 16,000 a year. This alone calls for nearly 16,000 extra quarts of milk a day, or an increase of 5,840,000 quarts annually, and of course necessitates a large increase in milk production.

2.—Educating the people to an appreciation that a liberal ration of clean milk is necessary to child development and the health of adults as well. Confidence in the quality of the market milk of the Kansas Cities has been established by letting the people know that all the cows that furnish the milk for those cities is produced in clean, regularly inspected dairies from cows that have passed a tuberculin test within a year and also passed a physical examination within one month. Largely for that reason Kansas City has the best market milk supply of any city in America and her people are told of this fact which gives them confidence in milk and milk products that they buy.

Raw milk from a perfectly healthy cow is the best food that can be consumed by people. One quart of raw milk contains the same energy value as eight eggs, or two pounds of potatoes, or three-fourths pound of lean beefsteak, or one and one-third pounds of cheese. Save on other edibles if you must, but induce the children to drink more milk, has been constantly hammered into the people of the two Kansas Cities by the health departments.

On the other hand, milk from unhealthy cows may prove to be very detrimental. Cows with spoiled udders may be the cause of serious illness in children and in adults as well, such as throat and intestinal ailments of a streptococcic, staphylococcic or coli origin and any question as to the quality of a given milk reduces the demand for it. No dairyman should be allowed to sell milk from a diseased udder. The organisms of danger are there, why take chances? The physical examination of cows will eliminate the danger by rejection and elimination of such from the herd.

From what has been said, one might draw conclusions, that the dairyman must suffer a severe loss if all cows with spoiled udders were condemned and that he might be forced to quit business on account of his losses from such condemnation. If that were the fact he should be forced to quit selling milk for human consumption. However, it is not often the case; most dairymen profit financially by the physical examination. He profits financially in three ways:

1.—By disposing of all cows with spoiled udders he checks to a very large degree

* Presented at the annual meeting of the Kansas Veterinary Medical Association, Wichita, Jan. 4-5, 1928.

streptococcic and staphylococcic infection of the udders of other cows.

2.—He profits when he disposes of the condemned cows and replaces them with cows with healthy udders which are high milk producers. A cow which is a good 6 gallon producer of a 4 per cent butter fat will usually produce at the rate of 3 gallon per day for 365 days, or 1035 gallon per year, at an average price of 20c per gallon. She would pay the owner $219.00 in milk returns in one year, or $657 if sold as bottled milk, and the value of the calf has not been included.

3.—He profits by saving in time, labor and the expense of medicine for treating cows with spoiled udders.

One may add a fourth advantage and say that it saves the dairyman a lot of worry and discouragement to have his herd of good cows all free from serious udder trouble.

Even though the physical examination of dairy cows did the consumers no good, still it is worth while and a paying proposition for the dairyman.

Method of Making Examination

In preparing to make a physical examination of dairy cows, the veterinarian should clothe himself with a large suit of unionalls, a pair of rubbers for the shoes and have ready blank records to be filled out.

When the cows have all been milked in one row, the examination should then start.

Approach the cow on the right side, lay the left hand on her back, then while the cow is getting used to the stranger, an observation is made of the side of the head, neck and shoulder. Then the right hand is placed on the withers and with a firm pressure brought down over the prescapular lymph glands. Then, facing backward, the right hand is placed on her back, the left hand is then passed down over the prefemoral lymph glands, and then placed on the udder over the teats, lifting up and at the same time feeling for deep abscesses. Then the fingers are drawn from behind forward in the groove between the two halves, to ascertain if punctured wounds are present, which always have a very offensive odor in that region. Next, the hand is placed over the back quarter of the udder with a firm pressure and slowly moved upward to the peritoneal region, to palpitate the mammary lymph glands.

This completes the examination on the right side of the cow. The same examination is made on the left side. The same kind of examination is made on every cow that is giving milk and on those that will freshen soon. Then a final observation is made of the tail and buttock of all the cows for sticky pus on the hair, which is an indication of purulent metritis.

The examination takes only about one minute to a cow. Then the herd record must be made.

Things usually found on the first physical examination of a herd are mammary abscesses, both superficial and deep; acute streptococcus or staphylococcus infection of either the parenchymatous or interstitial tissue of the udder; gargety udders, especially pus producers; purulent metritis; punctured, sloughing wounds between the two front quarters; sloughing wire cut teats; cow pox; actinomycosis; leukemia and anemia. Other ailments may be found, such as pneumonia, pleurisy, indigestion, necro infection of the feet.

All cows that are diseased should be removed from the herd. There are only two methods of disposing of cows that have been rejected. All those that can not be cured should be sent to slaughter at once. Isolate the others for treatment.

Judgment must be used in disposing of a cow from the herd. One must first decide in his own mind if the cow can be cured, then if she is worth the price of the treatment and if she will be a producer of quantity as well as quality. If the cow rejected can not be cured or will not be a real producer when she is cured, then she should go to slaughter and her place in the herd filled by a better cow.

After a careful examination has been completed, a complete record of each cow should then be made. The record should show the car tag number, breed, color, weight, age, date of last calving or next calving time, of each cow, and last, but most important, if the

udder is normal or diseased, and remarks, if necessary.

The qualifications of the examiner is of much importance. Only a veterinarian can intelligently make such important examinations, diagnosis and prognosis of the various diseases and conditions found and the tissues involved.

For illustration, to prove that laymen are not qualified to make the physical examination: The owner of one A. grade raw milk dairy that I practice for, thinks he knows. On one occasion a cow was rejected for a deep udder abscess, the owner thought the diagnosis was wrong. The abscess was then opened and about 2 ounces of thick yellow pus was removed. The same man brought into the herd a certain jersey cow and when she was examined he was told that the cow would increase his herd bacterial count. He could see nothing abnormal with her udder, but to his surprise the bacterial count was decidedly increased. When she was removed from the herd the bacterial count returned to normal.

The bacterial count varies greatly in numbers at different times on individual cows and especially in different cows. One cow, No. 98, that the Kansas City health board has been running a test for several weeks is a puzzle. Her count ranges from 4,000 to 91,000 bacteria per c.c. The count for other cows in this herd ran as low as 200, proving that the bacterial count varies. It is believed by some that a cow whose milk runs an unusually high bacterial count is abnormal, the udder diseased, and she should be rejected.

The head of the milk and dairy division of the Kansas City Health Board, gave some interesting data at our Kansas City veterinary meeting in December, which proves beyond a doubt that the physical examination of dairy cows is a positive asset to the dairy industry and adds materially to the production of good milk and to the health of children.

In 1923, when the physical examination was begun, cows in raw milk dairies produced an average of one gallon of milk a day. In 1927 the average milk production had increased to 3 gallons a day. This remarkable increase in production is accounted for in two ways: First—By eliminating all cows with spoiled udders; second—by a constant educational campaign for better cows carried on by the veterinarians during that period.

In 1923, cows in dairies supplying pasteurized milk produced an average of a little less than one gallon of milk a day. In 1927 the average milk production was increased to nearly 3 gallons a day. The above figures are based on all the cows in the dairies, including dry cows.

Bloating is common in cows about to calve, due to intestinal torpor.

When the physical examination was first enforced in 1923 there were 104 dairies which quit business. 75 per cent quit of their own accord, 25 per cent were forced to quit because of the examination. In one herd of 191 cows, 16 permanent rejects were taken out on first examination, because of spoiled udders.

One dairyman, having 150 cows, that sells milk in Kansas City, Kansas, where the physical examination is not required, could not reduce his bacterial count sufficiently to cap his milk A.A. The owner last week called me to give the physical examination. 24 cows were rejected. The herd bacterial count was 48,000—the 24 rejects was 57,000. The herd bacterial count then dropped to 14,000—one reject cow ran 350,000, another 380,000.

Since the physical examination was en-

forced and cows with spoiled udders removed from the herd, the bacterial count of market milk has decreased nearly 50 per cent. It has been decreased so rapidly that a few months ago the consumers league recommended that the standard of requirement for bacteria be raised from 50,000 to 10,000 per c.c. Some of our dairies now have a bacterial count as low as 400.

In 1927—189 raw milk dairies produced 16,000 gal. milk daily.

In 1927—1400 pasteurized dairies produced 20,000 gal. milk daily.

In 1927—from 98,360 cows, 400 cows were rejected.

The Kansas City health department regards the veterinary inspection (physical examination) as the biggest asset of the dairy division of the food department.

Dr. J. D. Ray, of the Kinsley Laboratories, is carrying on a series of experiments on milk from spoiled udders. He finds that straw colored milk from an udder during the active stage of inflammation injected into guinea pigs produces death in from 4 to 14 days. Death is caused by septicemia, streptococcus abscesses and other organisms.

Summary

Raw milk is the best all-round food known to man. Milk should be used only from known healthy cows. All cows producing milk for human consumption should have the tuberculin test at least twice a year and a physical examination once a month. It gives the consumers a more wholesome milk. It pays the dairyman financially. It has a tendency to stop infections, mammitis and other udder troubles in the herd. The physical examination will assist the dairy part of agriculture to pull out of its financial difficulties. It will influence people to consume more milk and other dairy products. Every city and town should require the tuberculin test and physical examination of all dairy cows and rejection of all cows with spoiled udders, as well as cows that react to the tuberculin test.

POKEWEED THE CAUSE OF POISONING

Dr. L. L. Parker, of Catskill, New York, sent to the writer a specimen of pokeweed, poke or garget, and a request for information concerning the poisonous qualities. The letter follows:

"I am forwarding you via parcel post a specimen of a plant which grows in great profusion in a pasture where cows are kept. Some of the cows appear to be suffering from chronic poisoning, and I would like to know if this plant is the cause. It attains the height of five or six feet and some of the leaves have been eaten, presumably by the cows.

"I am a subscriber to VETERINARY MEDICINE and have had the benefit of your excellent advice previously."

Earlier in the season I received the following letter from Des Moines, Iowa:

"Under separate cover I am sending you a specimen of plant growing in my garden for two years, grows six to eight feet high, spreading bush, and came up this year from old root. Heavy with a berry fruit of a dark purple, nearly black when ripe.

"Will be pleased if you can tell me what it is, and if its fruit is good for food or for medicinal purposes."

The stems and leaves of the plant are somewhat fleshy, the flowers whitish, the berries are crimson in the fall. The large root is dark brown in color. Many cases of poisoning from eating the root and leaves are recorded. The plant is a purgative and somewhat narcotic.

Pokeweed is a violent but slow acting emetic, vomiting beginning only after about two hours. It also affects the nerves and muscles producing retching, spasms, severe purging and sometimes convulsions. All parts of the plant possess acrid and somewhat marked narcotic properties. It contains the active alkaloid phytolaccin, and another investigator has found phytolaccotoxin, which is said to be similar to picrotoxin and cicutoxin, which are poisonous substances.

L. H. Pammel.

External Parasites of Poultry

By F. D. PATTERSON, JR., Auburn, Alabama,
Veterinary Department, Alabama Polytechnic Institute

Lice

Lice are universally distributed. Each kind of poultry is host for its own particular species of lice. Lice of poultry all belong to the order Mallophaga. This order is composed of biting lice only, and is divided into two families:

1. Philopterdæ, distinguished by the fact that the tarsi of lice belonging to this family terminate in one claw.

2. Liotheidæ, tarsi of this family terminate in two claws.

Biting lice all agree in that their heads are broader than the thorax. Other morphological characteristics varying according to species. Their bodies varying from a short, broad, compact conformation to that of an elongated out line. In color they are generally a dusky yellow, many showing brown pigmentation. Lice are six-legged parasites and are usually active; continually crawling over the body of their host. They are most often found under the fluffy feathers, such as are found on the body proper and around the vent of the fowl, though none of the external parts are by any means exempt from attack. Lice of poultry do not suck the blood of their host but feed upon the scales of the skin and to some extent upon the feathers.

Life history: The most significant point to remember concerning the life history of these parasites is that they spend their entire life upon the host unless they accidentally fall, or are brushed off, but they freely pass from one host of the same species to another. This point is very important, as this knowledge is very helpful to us in instituting control measures. The eggs of poultry lice are yellow in color, elongated in outline and are found cemented to the barbules of the feathers by a sticky substance that is secreted when the eggs are deposited. The eggs hatch within ten days after being deposited, the exact time depending upon the external temperature. Young lice mature in about six weeks from the time they are hatched, and are identical to the adult in every way except size. Immediately after hatching they begin their life of parasitism. Lice are very prolific, one ovigerous female will produce heavy infestation in a short time.

Effects produced: The effects produced on mature fowls are: restlessness, itching, ragged appearance of plumage, nervousness, decreased egg production. Poor condition is both induced and aggravated by their presence, however, we should not too readily conclude that the poor condition of an individual is entirely due to pediculosis, just because we find lice in large numbers; as poor condition of a bird is very inviting to lice, for such individuals lack the necessary energy to use their natural combative forces. At the same time we should not overlook the damage that the lice are doing to such birds.

The damaging effects of these parasites on baby chicks is much worse than that produced on the adult, many hen hatched chicks die from their effects. Body lice crawl from the broody hen to the newly hatched chick. Lice, when they infest baby chicks, are found on the chicks' heads, under their throats, and, when infestation is very heavy, under their wings. The best method to detect these parasites is to blow the feathers back thus exposing the skin of the chick and the lice if present. It takes but a few of these parasites to prove fatal to the delicate host. The species of lice that are responsible for the damage done baby chicks is the large hen louse, *Menopum bisieratum.* There are several other species found on the adult bird, but the above one is the only one of much importance so far as baby chicks are concerned.

The symptoms manifested by chicks that are infested with lice are: weakness, emaciation, lack of energy, diminished appetite, wings drop down, general balled up appearance, diarrhea, fecal accumulations often paste up the vent obstructing the external

opening and, unless treatment is resorted to, early death is the inevitable result.

Artificially hatched and reared chicks do not become infested unless they come in contact with hen hatched chicks, or old birds, or else range in yards that have recently been visited by infested birds. Thus the preventive measures when brooder chicks are concerned are self-apparent.

Control and Treatment: It is natural for poultry to take frequent dust and sun baths, if allowed an opportunity. Providing a suitable dust bath that is exposed to the sun is of extreme importance in keeping lice under control, as it is nature's method of controlling these parasites, and produces other beneficial effects upon the bird; increasing their natural resisting powers. Any kind of fine dust particles that is not too irritating to the fowl's skin is suitable for making a dust bath; prominent among the materials used are road dust and finely sifted hard wood ashes. Some poultry men advise adding a little sulphur or lime and other external parasiticidal powders. When these latter agents are used care must be taken not to get the bath too irritating. The main point is to have the dust as finely divided and as little irritating as possible. The finely divided dust particles produce their parasiticidal effects by suffocation. While the dust is not completely effective it is at the same time indispensable as one of the methods of control.

When poultry is found to be infested with lice it is very important that measures other than those afforded by the dust bath be used. For adult birds dusting them with sodium fluorid is perhaps the best. This should be done thoroughly and every bird must be gone over at the same dusting period or else little will be accomplished so far as complete eradication is concerned. If necessary repeat in ten days so as to get the new crop of lice that should all be hatched out by that time. After this is completed do not allow new birds in the flock until they have been so treated. Repeat as often as necessary, but if the above measures are carefully carried out repetition should not be necessary for a long time. A good dusting powder is one part sodium fluorid to five parts wheat flour. Some prefer to use a sodium fluorid dip which gives the same results.

In treating baby chicks I would not advise the use of sodium fluorid until more investigation has been carried out, for this drug is poisonous and may do much harm if used in the treatment of baby chicks. In my experience a bland oil or grease is very safe and effective if properly used. A small quantity of adeps applied to the affected regions is generally all that is necessary. Care should be taken not to use too much.

Recently greased chicks if allowed to run in the hot sun may get blistered especially if too much grease has been used. It is unnecessary to use medicated oils and not as safe. I have observed severe ophthalmic affections following the use of adeps and sulphur on chicks that were allowed to become damp immediately after being treated.

Chicken houses and roosts should be thoroughly cleaned and sprayed in order to destroy what few lice might have accidentally fallen from the post.

PURIFIED TURPENTINE INTRAVENOUSLY IN THE HORSE

Essence of turpentine may be injected without any danger into the jugular vein of the horse in daily doses of 2 to 3 c.c. Its partial elimination through the mucous membrane of the lungs makes it an ideal remedy in affections of the respiratory organs; the author attributes to it the cure of a certain number of grave cases of equine typhus with pulmonary localisations. Besides its oxidizing power, which is not negligible, essence of turpentine has the property of developing, in the few hours or days following its introduction into the blood-stream, considerable hyperleucocytosis, the anti-microbic action of which appears in a rapid fall of fever and the regression of disturbing symptoms. Subcutaneous injections and the abscesses they produce have analogous, but less rapid results. Intravenous injections must therefore often be preferred, since they are easy, painless, and do not involve the troublesome consequences of an abscess.—R. L. HIGGINS in the *Veterinary Record,* London.

Foreign Bodies in Air and Food Passages

A Further Plea for the Development of Endoscopic Methods in Small Animal Practice.

By E. LEE MYERS, M.D., and ANDREW DARLING, M.D., D.V.S., St. Louis, Mo

RECENTLY, a veterinarian reported two cases of foreign bodies in the esophagus occurring in dogs[1], which were operated upon externally. The mortality was 50 per cent. Unquestionably his experiences with dogs were about as those pioneers in human medicine who attempted the removal of eosophageal foreign bodies externally. An external operation into the region of the mediastinum is fraught with many dangers, because of opening up the channels which are notoriously unable to care for unusual infection. It thus behooves us to develop easier methods of removing foreign bodies from the food and air passages of small animals if we wish to reduce fatalities.

In a prior number[2] of this journal both of us reported the successful removal of two foreign bodies, i. e., a needle, and a fish hook in two cases. Other members of the veterinary profession contributed in substantial measures[3].

The dog is entitled to this refinement in the removal of foreign bodies, in as much as he has helped in the training of many men for the successful removal of foreign bodies in the air and food passages of the human. If more dogs can now be successfully relieved of foreign bodies without damage to their lives, it will in a great measure serve to quiet the turmoil made by the anti-vivisectionists, who claim that dogs are unnecessarily used for the furtherance of human medicine.

In our plea for the more frequent use of the endoscope, we are not attempting to make the statement all other methods should be discarded. We know that the majority of dogs will rid themselves of the ordinary intruder, but we do wish to stress that in cases where it is evident that the dog is in distress, and is likely to suffer untold misery and probably death by delay, the operation of choice is a well planned endoscopic removal using Jackson's distally lighted instruments.

In human practice we have found it almost impossible to show a bone of the consistency of chicken bones in the x-ray, and have made diagnoses chiefly by inference, i. e., using contrast materials, such as bismuth, barium, either by having patient swallow capsules filled with the same, or by the use of cotton soaked pledgets. Sometimes the use of a very thick barium or bismuth meal will coat the foreign body. However, neither of the above mentioned can be used on the dog, because of the lack of co-operation. Using a feeding tube and throwing down a contrast substance can be tried, yet it becomes such an easy matter to do an endoscopic examination, that it would be better to ignore the x-ray methods for this condition in small animal practice.

Foreign body work on dogs is best done under morphin anesthesia. For each six pounds of weight, a grain of morphin should be used.

Case Reports

No. 1. A young dog, Boston bull terrier, seven months old, grabbed a chicken bone out of his mistress' hand and immediately howled with pain. No attempt at finger

[1] Taskin and Chaussee, Receuil de Med. Veterinaire, Page 408, Vet. Med., August, 1926, Vol. XXI, No. 8.

[2] Myers and Darling, VETERINARY MEDICINE, Vol. XX, No. 12, December, 1925.

[3] Horning & McKee, VETERINARY MEDICINE, Vol. XX, No. 7, July, 1925. Horning & McKee, VETERINARY MEDICINE, Vol. XXI, No. 1, January, 1926. Horning & McKee, VETERINARY MEDICINE, Vol. XXI, No. 10, October, 1926.

manipulation was made, the dog being given sufficient time to remove its own foreign body. A pronounced slobbering, and stiff-necked attitude was noticed with a tendency

Fig. 1. Showing fish hook in situ on reader's right: The sinker is barely to be seen on left of vertebral column.

to rotate the neck to the right. Three grains of morphin was used. A child's esophageal speculum located the bone transversely, just below the purse of the crico-pharyngeus. The removal was accomplished in less than five seconds, by grasping the bone at its end, rather than the center, which would make a "toggle" and made the extraction difficult with the possibility of perforation imminent.

Fig. 2. Fish hook and sinker with line attached after removal.

The dog made an uneventful recovery. It is a fitting tribute to the canine species, that now they are able to reap the benefits of work, which has redounded to the health of the human species, which has been mainly developed by practice upon the dog. It therefore becomes our duty to see that more small animals are given such attention.

No. 2.—Fish Hook and Sinker in Stomach. A Boston bitch, five years old, weighing about 15 pounds, was found late at night with a fishing line leading into its mouth.

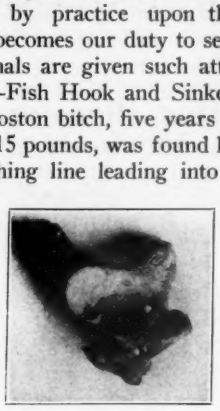


Fig. 3.

Two grains of morphin was used to induce narcosis, a hypopharyngoscope introduced by one of us (E. L. M.) showed the line to extend farther than could be seen with that instrument. A nine m. m. esophagoscope demonstrated that the fish hook was in the stomach. The dog being taken immediately to a roentgenologist, Dr. Gray Chandler Briggs, where we were astounded in finding that the sinker had passed out of the stomach into the intestine and the fish hook was in a position which meant a definite anchoring in the stomach wall.

The dog was again morphinized, the barb of the hook was covered with the lip of the esophagoscope, after being certain that a disimpaction of the hook had been done. As

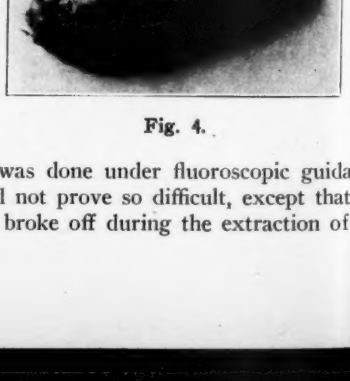


Fig. 4.

this was done under fluoroscopic guidance, it did not prove so difficult, except that the barb broke off during the extraction of the

hook and sinker, and it became necessary to re-introduce the tube. The barb being picked out of the stomach without any great difficulty, the dog made an uneventful recovery. (See Figs. 1 and 2.)

No. 3.—Esophageal Obstruction. A cross-bred terrier, four months old, was given a bone to gnaw. Later was found in distress by a veterinarian who could not remove the obstruction by the orthodox methods. It was referred to one of us (A. D.) three days later, presenting the usual symptoms of choke seen in dogs. Deep morphinization, after waiting an hour a hypopharyngoscope disclosed a bone crosswise in the lower cervical region. Alligator forceps were used and efforts confined to releasing the imbedded part on one side. After considerable maneuvering this was successful and with slight traction brought forth a bone as shown in the illustration (See Fig. 3). The recovery was uneventful.

No. 4. Boston terrier, a seven-year-old dog, while exercising was given a steak bone. He was found choking shortly afterwards and in the few moments required to open the dog's pen, he was apparently dead. A quick finger examination found the bone crosswise in the pharynx, pressing down on the epiglottis. It was raised somewhat by digital manipulation, and then hurriedly removed by a pair of curved dressing forceps which are always kept on the operating table. Artificial respiration and strong ammonia inhalations for a few minutes relieved the situation, which, having occurred in one's institution, would have been hard of explanation. The excuse of not using an esophagoscope is too obvious for explanation. (See Fig. 4.)

Tracheotomy is more apt to be done in circumstances such as these.

This work has indeed a place in Veterinary surgery. Since the foregoing article was written we have had occasion to make further use of it. One case, the removal of a porkchop bone from a dog's mid-esophagus offered features of particular interest that will be described at some future time.

A NEW MEXICO SNEEZE WEED SUSPECTED OF POISONING

Dr. Henry C. Schipman of Las Cruces, New Mexico, writes:

"I am sending you under separate cover a sample of weeds found in pastures here which are thought to be causing sheep losses.

"Will you kindly identify this weed and also let me know if it really is poisonous?"

The plant sent for identification is one of the sneeze weeds, *Psilostrophe tagetinae,* which has conspicuous yellow ray flowers, lobed very much in the same fashion as the common sneeze weeds. The stem of the plant is woolly and the leaves are slightly pubescent. This plant grows over the plains of New Mexico to Arizona and northward. It forms a conspicuous part of the landscape of New Mexico and Western Texas. The plant is closely related to the sneeze weeds, of which there are several species all of which are known to be toxic. Dr. Schipman did not mention the symptoms of poisoning but I suspect this plant of the sneeze weeds produces a weeping effect of the eyes. The animal is restless, and in a staggering condition; there is jerking and trembling of muscles, especially of the hind quarters. The bowels are loose. The plant has a pungent effect on the throat and stomach. L. H. Pammel.

BELLADONA POISONOUS

Dr. C. L. Smith of Boulder, Colorado, writes:

"Client having threshed barley in which there were found seeds of Belladona plant (small percentage). Will it be dangerous (if ground) to hogs. Please advise."

The belladona is *Atropa belladona,* or deadly nightshade. It is a perennial herb with a fleshy creeping root. The flowers are large bell shaped, dull reddish in color. The fruit is a reddish berry with numerous seeds. It is not given as naturalized in eastern North America. However, the black henbane, *Hyoscyanus niger,* is natur-

alized not only in Iowa, but in Colorado and other places in the west and east. The flowers of this are dull yellowish and the plant is a perennial or annual with climbing pubescent foliage. At any rate, both of these plants have a very active principle. The latter contains hyoscin. The effect of the belladona is that of atropin. It causes dryness of the mouth, burning in the throat, nausea, loss of vision and intoxication or delirium, a feeble pulse. It is fairly toxic in even comparatively small doses. Probably, however, there is not enough in the barley to make it very toxic, but I would suggest caution in regard to its use.—L. H. Pammel.

VACCINES AND VIRUSES

True vaccines are biologics prepared by suspending living or attenuated microorganisms or viruses in a suitable media. When living organisms are employed in the preparation of vaccines they usually are avirulent in type. When attenuated organisms or viruses are employed in the vaccines the attenuation may be accomplished by treating them with chemicals or heat or by passing cultures of the organisms through another species of animal thus increasing their virulence for the latter but decreasing it for the original species.

True vaccines produce an immunity of the active type. Their field of usefulness is entirely prophylactic. They should never be employed as curative agents. Anthrax vaccine, blackleg vaccine, bovine abortion vaccine, chicken pox vaccine and rabies vaccine prepared either by the Hoegyes or the Pasteur methods are examples of true vaccines. Single injection rabies vaccine, so called because only one injection is required, is not a true vaccine. This product consists of a suspension of rabies virus which has been killed by treatment with phenol, in a suitable media.

The actual infectious agents of several diseases of animals have not been isolated and it has so far been impossible to cultivate them artificially. Rabies and hog cholera are among these diseases. In order to produce an active immunity against rabies or hog cholera, therefore, no better method is available than to employ some substance of the body which is known to contain the infectious agent either alone or in conjunction with another biologic. This body substance is referred to as the virus. In the case of rabies, the virus consists of the brain and spinal cord of rabbits or sheep which have succumbed to this disease. This virus, which after attenuation is referred to as rabies vaccine is used alone. This type of rabies vaccine is administered at regular intervals over a period of two or three weeks. In the case of hog cholera the virus consists of the blood of pigs sick of this disease. In the immunization against hog cholera no attempt is made to weaken or attenuate the virus and in this respect it is the only virus in general use, therefore, it should be used only in conjunction with anti-hog cholera serum.—F. A. Imler, in the *Bureau Veterinarian.*

INTRA-UTERINE TUBERCULOUS INFECTION

I wish to report a very unusual case which came to my attention this week.

At the local slaughter house where I have charge of meat inspection, a three-year-old cow was killed which showed caseo-calcareous mediastinal, hepatic, iliac, prescapular and mesenteric lymph glands, also a few scattered foci in the liver.

She carried an unusually large fetus which broke through the uterus during evisceration. I was attracted by three cotyledons showing typical tuberculous lesions. The fetus proved to be twins. Out of curiosity, I opened both calves. One showed typical caseo-calcareous lesions of the lungs and liver; the other was normal. The gestation period was approximately thirty-three weeks.

Los Banos, Calif. R. H. Pease.

Veterinary Publicity*

By M. H. REYNOLDS, St. Paul, Minn.,
Veterinary Department, University of Minnesota

General Status

THE status of the medical profession is apparently good, and the profession safe so far as medical quacks and fads and cults are concerned, if general editorial opinion may be taken as an index. The result of a certain questionnaire indicates that the tide of opinion is moving back toward the regular practitioner. A questionnaire sent by a medical publication to the editors of America's most influential newspapers, indicate that these editors are overwhelmingly in favor of the regular physician. About 90% stated that they call a regular physician as compared with less than 10% who call in some of the various cultists. This was the response in about 2700 replies. I think that we can safely assume that in general the same holds for the veterinary profession as to its standing with the public.

We believe that veterinarians, as individuals hustling for what they want, are about as active as anybody, but something seems wrong or missing in the status of the profession in general. There seems to be a lack of collective hustling and something missing. Some of the older members of this association felt this rather vaguely, perhaps, years ago when we made arrangements for regular appearance of representatives of this association on our state livestock breeders association programs and for the reverse; and when we went after membership for the State Veterinary Association in the State Agricultural Society; and put breeders on the Livestock Sanitary Board with the executive work in veterinary hands. But that was only a little pioneering, just a few scratches in a big field that needs working.

Standards of Ethical Publicity Are Changing

Even the very conservative English medical men are recognizing the ethics and wisdom of proper publicity, since the eminent Sir Thomas Horder took such a position before the British Medical Association not long since. This association has apparently recognized and is attempting to regulate publicity, and has agreed to permit much greater freedom of expression including public lectures on health. It seemed to have been a little conservative however in attempting to confine this publicity to prominent physicians retired from active practice and to instruction which must avoid theories. Sir Thomas suggested a new sub-profession, that of medical journalism in order to avoid an excessive publicity, which might react unfavorably upon the profession. With reference to publicity in the medical profession, there are other signs of definite awakening.

In considering what we are about to present, please note the general idea involved, and the purpose of it rather than details.

A young man of Tulsa, Oklahoma, who must have been a pretty good psychologist, and had a talent for writing advertisements, started something. His friend the physician was telling this young man his troubles. The young man concluded that the problems were unsolvable by the individual physician, but that if enough physicians should combine and pull together, something might be done. He prepared some highly original copy with the aid of some medical friends, and proceeded to call on 125 physicians who agreed to help to support the campaign. The following Sunday morning the good citizens of Tulsa, found their papers on the doorstep as usual, but somewhere on the inside in a prominent place, and in bold face type was something like this: "How much do you owe your doctor? Your doctor has only one thing to sell, his services. To give you the kind of service you demand he is compelled to spend many years in preparation. His reward is long hours and broken, sleepless nights, but how about you. Do you in return for these services pay your doctor

*Report of the Committee on publicity of the Minnesota State Veterinary Society, presented at the 31st annual meeting held in Minneapolis, January 12-13, 1928. The members of the committee were W. A. Anderson, H. A. Greaves, and M. H. Reynolds, chairman.

promptly? Are you one of those individuals who forget your doctor when the crisis is passed? Are you the kind that allows your doctor bill to run for months and spends your money on other things?"

But since the Tulsa citizen was rather liable to take this jar, and then forget all about it, he gets it again on the following Sunday, and every Sunday the inhabitants of Tulsa were reading about the troubles and work of their family physician. These communications were not signed by any physician or any body of physicians. The citizens merely had this placed before them in bold face type. As a result the citizens began to dig up their old and forgotten doctor bills and in the meantime the profession had received a lot of wholesome and ethical advertising.

Friendly Atmosphere Is Important

Big industry is spending vast sums of money to secure a friendly public opinion. We are all familiar with what the big oil and gas companies and packers are doing, and it is quite safe to assume that they know what they are doing and why. The mere fact that they have continued this policy so long indicates that it pays. Every one will agree that we need the most friendly relations between veterinary medicine and animal industry, and the fullest possible appreciation on the part of animal industry for our services, and we need to distinguish between isolated friendly relations between the individual practitioners and his clients, and a general friendly atmosphere between organized veterinary medicine and organized animal industry. They are two quite different factors, although the one depends somewhat upon the other.

Good Advertising

Before it is possible to put out any propaganda effectively, it is necessary first of all to get attention, and there is no better way to get attention than to propose to give something. The patent medicine fakirs usually give before they get, and their appeal is personal. The fakir does not talk about himself and his medicine first, but about the aches and pains and troubles of his hearers. He is quite definite and specific in his statements. He would not sell a bottle in a month if he were to talk in general terms about disease or give the impression that he is working his audience to get something for himself.

Dr. C. D. Folsé makes some interesting suggestions concerning veterinary advertising. He calls attention to the fact that practically all other business interests are giving a great deal of time and money to advertising and obviously find it profitable and says "to be effective, advertising must have an appeal, an appeal of practical nature. It must create an atmosphere of confidence, must come from very carefully selected channels and must be frequently repeated," and I think he should have added, long continued.

Inasmuch as the Eastern Iowa Veterinary Association is a pioneer in professional publicity, it has seemed advisable to study the history, methods and results of their work. So far as we know they have developed a larger, better organized and more fruitful work than any other similar organization.

President Glenn and Secretary Brooks, of the committee on Public Relations of the Eastern Iowa Veterinary Association, have written us quite fully concerning their history and experience. The following is extracted from their letters and printed matter sent us. The Eastern Iowa Association work began with a special appropriation from the society, aided by funds contributed by officers of the association. The President appointed a publicity committee of three men including the chairman and secretary of the committee. The chairman was to supervise in general, put items of interest to veterinarians in published matter, and keep the doings of the publicity committee before the veterinary journals. The secretary received report cards, classified and edited the material into bulletins for distribution to the press. The President also appointed a subpublicity committee of seven members, active practitioners, well distributed geographically each of whom was to report on fur-

[1]Veterinary Advertising by C. D. Folse, VETERINARY MEDICINE, Vol. XXII, No. 11, November, 1927, pp. 473-5.

nished postal cards to the secretary concerning the prevalence of infectious diseases and other matters of interest to stockmen and veterinarians. It was also the duty of each member of this sub-committee to endeavor to interest neighboring practitioners, and see to it that they sent in report cards each week to Secretary Brooks. After this was well started, President Glenn called a meeting of commercial travelers who handle serums, pharmaceutical preparations in general, surgical instruments, etc., in an effort to get their support and cooperation which came very readily. The commercial men agreed that when they called upon a local practitioner, they would inquire of him concerning infectious diseases of livestock, get a list of local newspapers, and phone both in to Secretary Brooks at the end of the week, and that they would also endeavor to interest practicing veterinarians in this publicity work, and leave blank cards for their use. At the end of each week the Secretary goes over the cards, and information received from the commercial travelers by phone, and edits this with material from report cards into the bulletins for the press.

Secretary Brooks has been sending such bulletins each week to all papers in the larger cities, and to local papers within a radius of 20 miles of the outbreak reported. Great pains have been taken to be certain that in formation sent out was authentic, and that everything that went in for publication must pass through the publicity committee. No individual members of the committee may send in anything for publication.

When the local veterinarian sends in report cards, Secretary Brooks sends him another supply so that he may constantly have some on hand. When the association's finances became low at one time, the secretary put the matter before the commercial firms in a circular letter. Fourteen of these firms promptly and cheerfully sent in $10.00 each. Favorable editorials on this work and the news bulletins, have been republished on colored slips, and sent with new copy to newspapers not yet cooperating, in order to enlist these also. The cooperating commercial firms were each given a supply of these slips and they have been distributed with every letter from local shipping depots to local practitioners.

No one has received any pay for the work thus far in Iowa. Several men have evidently been putting in a considerable amount of time and unselfish labor for the good of the profession, and the present situation in Iowa, seems to indicate that they are really getting results worth while.

Dr. E. R. Steel then Secretary of the Iowa Veterinary Medical Association, wrote me in March to the effect that the state association had adopted the Eastern Iowa Veterinarary Association's publicity plan. A subsequent letter from President Gleen gives some further information.

The state association financed their work the first year by a special assessment, but this was not continued the second year, because only $97.00 was actually used during the first year, and the officers felt they could handle this publicity work out of the regular dues. Officers of the state association write us that they endeavor to keep up a constant agitation to get reports of this publicity work into the papers of the state, and find the papers are willing to aid, the results being valuable to both veterinarians and stockmen, e. g., in a propaganda for pre-vaccination of hog cholera.

At its meeting in January, this year, the Iowa State Association decided to undertake a more ambitious program, and by unanimous vote a special assessment of $10 was levied for public relations work. This would seem to indicate the Iowa veterinarians regard the results of the work of the past two years as satisfactory.

The Eastern Iowa association is to continue their work until the whole state is effectively organized in the state association work. The main difficulty which they report has been that of finding men who will devote sufficient time to getting in and handling reports.

Entertaining the Legislature

The Iowa state association reports that a plan of entertaining members of the legislature at an annual banquet has been working out fine. Their scheme was to charge

$2.00 for tickets and serve a dinner which costs $1.50 thus financing tickets, music and other necessary expenses. The Local Chamber of Commerce gave them $50.00 worth of music. Tickets for the banquet were distributed to members of the legislature, by two veterinarians, one a member of the House and the other in the Senate. They also invited in some prominent breeders and representatives of the agricultural press. This year when the legislature is not in session, they contemplate inviting representatives of the Iowa League of Municipalities.

The Eastern Iowa association has apparently used some fine psychology and is apparently getting real results, greatly benefitting both animal husbandry and veterinary medicine. Other states, for example Illinois, have done something, but the Eastern Iowa Veterinary Association has so far as we know, had the most comprehensive and effective general plan. There is probably no state in the union where the veterinary profession is getting into more sympathetic and helpful touch with the public, nor where practitioners are more generally optimistic.

Illinois has done something along this line, but the Iowa work is far more comprehensive and probably very much more effective. Illinois has a policy committee.[2] Their report stresses a need for general milk and dairy inspection and inspection of meat and meat products and offers as argument, that only about 60 per cent of the meat used in Illinois outside of the larger cities is inspected, which means that nearly half is sold without slaughter house inspection. They recommend that veterinary inspection as to the health of cows giving milk for public consumption, should be made general and suggest permanent county positions for veterinarians now doing tuberculin work only, on part time. But this is an old, often tried, misunderstood and not very effective policy. To outsiders it looks as though they are trying to get something instead of proving good faith first by giving something as did the Eastern Iowa association. However, they suggest news articles from members of the association for local publication and addresses by members of the association on these subjects before the Kiwanis and Rotary Clubs, Women's Clubs, etc., but this would seem to have the same objection.

A friend who is in close touch with veterinary matters in Illinois and Iowa, calls attention to the difference in methods and results of the work undertaken by veterinarians in the two states, suggesting that the Illinois veterinarians, undertook to defy and whip the farmer, with disastrous results, whereas Iowa veterinarians undertook to get in touch with him, and to get his good will not by words, but by doing something helpful for him, in an organized way. He states that the situation in Iowa is becoming very satisfactory for the veterinary profession, and for sometime has been exceedingly unsatisfactory for the Illinois profession. This seems to have been tacitly admitted by Dr. L. A. Merillat as Secretary of the Illinois Association[3] all of which indicates rather clearly that the action of the profession as a whole in a state, can seriously affect the professional well being of the individual practitioner. Perhaps the fact that although the A. V. M. A. as a whole has been increased in membership during the past five years its membership in Illinois has decreased approximately one third is just another reflection of this same unsatisfactory condition.

The publicity work in which the Eastern Iowa Veterinary Association has been interested, and in which it has been doing such fine work, seems to have reacted very favorably upon their association meetings and professional enthusiasm in general. We note in a report of an annual meeting in one of our veterinary journals,[4] that this local association meeting was attended by 174 veterinarians, and 86 women, and that the interest in the program was very unusual. Their papers were discussed to the limit of time available, and those attending the meeting were present at the sessions. This is a

[2]Policy adopted by the Illinois Veterinary Medical Association by J. S. Koen, VETERINARY MEDICINE, Vol. XXII, No. 1, January, 1927, pp. 17-18.

[3]Address of the secretary of the Illinois Veterinary Medical Association by L. A. Merillat, VETERINARY MEDICINE, Vol. XXII, No. 3, March, 1927, p. 92.

[4]The Eastern Iowa Veterinary Association, VETERINARY MEDICINE, Vol. XXI, No. 12, December, 1926, pp. 517-82.

very natural result of an enthusiastic, mutually beneficial work, such as this association has been doing. The reaction on the doer of good works, is always favorable.

Recommendations

That this association shall undertake something in the way of publicity work believing that it can be made helpful to the profession as a whole, and to individual practitioners.

Second—that in as much as the Eastern Iowa Veterinary Association Plan has had actual field trial, and given satisfactory results, Minnesota should model her start after this plan, and then perhaps modify after we have had some experience of our own.

Third—That the adoption of this plan should involve the appointment of a committee of three consisting of chairman, secretary and one other member, this committee being empowered to select a sub committee of about seven at discretion.

Fourth—that some money for example $100.00 be provided by appropriation or otherwise for postal cards, printing of bulletins for the press, and possibly for part time office help.

MILK DEFINITIONS*

Milk: The whole, fresh, clean lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within 15 days before and five days after calving, or such longer period as may be necessary to render the milk practically free from colostrum.

Cream: That portion of milk rich in milk fat which rises to the surface of milk on standing, or is separated from it by centrifugal force.

Evaporated Milk: The product resulting from the evaporation of a considerable portion of the water from milk, or from milk with the adjustment, if necessary, of the ratio of fat to non-fat solids by the addition of or the abstraction of cream. It contains not less than 7.8% of milk fat, and not less than 25.5% of total milk solids; provided, the sum of milk fat and total milk solids be not less than 33.7%.

Condensed Milk: Evaporated milk in the manufacture of which sterilization of milk and cream is a necessary and usual process.

Sweetened Condensed Milk: The product resulting from the evaporation of a considerable portion of the water of milk to which sugar (sucrose) has been added. It contains not less than 8% of milk fat and not less than 28% of total milk solids.

Colostrum: The udder secretion near the time of parturition. It contains a high percentage of albumen and less casein and sugar and more mineral salts than normal milk. It is yellowish in color, of unpleasant odor and salty taste. Its specific gravity ranges from 1.040 to 1.090. It is laxative in action on the young animal and contains protective substances of value in maintaining its health.

* After Regulation of the U. S. Department of Agriculture for the Enforcement of the Federal Import Milk Act.

VALUE OF LIGHT THERAPY IN VETERINARY PRACTICE

This is Mardi Gras day, a real riot, and I seem to be marooned alone in the hospital for a time at least.

To kill time, I am going to ask for some information.

What can an ultra-violet lamp do that cannot be done quicker in another way.

I have a very powerful machine—a very expensive one at least—but I think it is an ornament.

We appreciate that in human medicine, many things are done solely to "make it nice" for the human sufferer.

Personally, I think treating skin diseases, rachitis, anemias, etc., is a long job, by this method of therapeutic endeavor. I have long since cut it out.

In the language of the streets, What's it good for? I want some of your experienced correspondents to answer me that.

W. J. Ratigan.

New Orleans, La.

Report on Infectious Diseases*

By R. FERSTERMACHER, W. T. WILLIAMS and J. N. HOLZER

Infectious Abortion

Your Committee have nothing new to offer with reference to treatment. Several states have adopted regulations requiring breeding animals to be accompanied by a laboratory report showing them to be free from the disease as indicated by laboratory test before they can be transported into those states. Several states have adopted plans to establish abortion free herds; among these states are Pennsylvania, New Jersey, and Minnesota. We understand one of these states has been working on this plan for three years and has established only a few abortion free herds; the other state reports better success. Minnesota has one herd under this plan, but is not free at this time as only several months have elapsed since starting under this plan. It does not appear that the present plan is practicable in Minnesota, as it requires an owner to have at least two, if not three, complete, places to maintain the animals. It therefore appears to us that a plan more suitable to the average farm conditions must be evolved if we are going to be able to aid the breeder in the prevention of this disease and thus saving the very nucleus of the cattle industry—the calves.

Hog Cholera

This disease has not been as prevalent during the present year as it was during 1926. This was to be expected, especially if we can be guided by past experience following serious outbreaks of this disease.

There have been 752 cases of new outbreaks of hog cholera reported during the past year. There have been 675 permits issued to owners to vaccinate their own hogs. 299 renewals of such permits have been issued. Eighteen schools of instructions have been held by the Extension Department of the University Farm in compliance with the state law. There are 1,174 permit holders in the state. The new schools were held in Brown, Freeborn, Lincoln, Nicollet, Traverse, Waseca, Wilkin, and Yellow Medicine. Hog cholera was reported in 43 counties during the last quarter of 1927.

Glanders

The mallein test has been applied to 12,392 horses; of this number tested, 11 reacted to the test and were destroyed. Five of these were found in the vicinity of Deerwood, three near Alexandria, two near Pine Island, and one near Brainerd.

Swamp Fever

An increased number of reports of this disease have been received. This may be explained possibly on account of its being a quarantinable disease and more veterinarians are thus reporting the cases; also it is no doubt being more often diagnosed by us as we become more familiar with the condition. It has been suggested that affected animals should be disposed of in the same manner as in the case of glanders. This procedure should not be encouraged until a method is established whereby it can be diagnosed with a reasonable degree of accuracy.

Cattle Disease, from Eating Damaged or Spoiled Sweet Clover or Silage

Here, apparently, we are dealing with a disease that is becoming more prevalent in the northern sections of Minnesota. However, cases have been diagnosed in the extreme southern portion of the state. Probably this trouble is entirely new, but until a few years ago it was not recognized. Earlier cases, may have been mistaken for some other dis-

*From the report of the committee on Infectious Diseases of the Minnesota State Veterinary Society, presented at the 31st annual meeting, Minneapolis, January 12-13, 1928. Certain portions of the report have been omitted as being of local interest only.

ease. This has been the case in nearly all new diseases. A peculiar coincident of this disease is the fact that other clover forages did not seem to produce the disease, nor did it attract attention until sweet clover began to be used extensively as cattle feed. According to Schalk, carefully controlled feeding experiments carried out for months with good sweet clover hay on both cattle and rabbits failed to cause any damaging results. It appears that the disease producing factors can be attributed only to spoiled or damaged sweet clover hay and silage. Neither will all spoiled sweet clover hay and silage produce the disease. From the information available, it appears that it is not necessarily the degree and extent of mold or spoilage that determines the danger of the damaged sweet clover. Probably it is certain kinds or varieties of mold or spoilage which lead to the disease condition.

Tularemia

An infectious disease of rodents, especially wild rabbits. Although man is extremely susceptible, infection is limited to those who come in contact, directly or indirectly, with the three sources of infection. The great reservoir of infection, and the greatest source of human infection, is the wild rabbits—jack, cottontail, and snow-shoe varieties—but owing to the agency of blood-sucking insects common to rabbits and man, we also find cases resulting from tick bite and fly bite.

As a rule, when the infection has come from a rabbit, some injury has been inflicted on the hand while dressing the rabbit, although a manifest injury is not necessary for infection to occur. Usually an ulcer develops at the site of infection, accompanied by enlargement of the lymph glands that drain the ulcer. Fever is always present and continues for two or three weeks. The primary lesion may be located in the conjunctival sac or on parts of the body other than the skin of the hands, if due to tick bite or fly bite. The diagnosis is confirmed by the agglutination test or by isolation of the micro-organism. One attack confers immunity in man. The infection has never been found in nature in domestic rabbits raised in rabbitries.

Diagnosis: The agglutination test is the most valuable laboratory aid in diagnosing tularemia. The test is negative during the first week of the disease, becomes positive in the second week, reaches its maximum in the third week, but remains positive for a long period thereafter.

Prevention. No preventive vaccine or curative serum has been perfected, nor has any special drug been found effective against tularemia. Rabbit meat thoroughly cooked is harmless for food.

Rabies

Rabies is a virulent and infectious disease which develops only following accidental inoculation. There is no such thing as spontaneous rabies. The disease is always transmitted by the biting, licking, or scratching of a rabid animal, or by objects or instruments soiled with rabid virus breaking through the skin. It has not been definitely determined whether the virus is a bacterium or a protozoan. It is generally acknowledged to be a filterable virus.

According to Miller of the Federal Bureau of Animal Industry, there are only four states in the Union that have had no rabies during the past year. Rabies was diagnosed on Dec. 31, 1927, in a dog from Two Harbors. At the present time the source of infection is not known. Prior to this case, rabies had not been present in Minnesota since May of 1926. One state health commissioner's report shows that 1,031 persons were bitten by animals last year, and that negri bodies were demonstrated by laboratory examination of the animals. Eighty-four deaths of humans occurred from rabies in 1927. In 1926 35 and in 1925 33 deaths occurred from this disease.

A regulation was adopted by the Live Stock Sanitary Board during April of 1927 requiring that dogs imported into Minnesota must be accompanied by a

health certificate, stating that the animal had not been exposed to rabies during preceding nine months and that rabies had not occurred within a radius of fifty miles of the animal within that period prior to shipment into the state. This, then, brings up the question as to the danger of having the disease imported into our state by our tourists. It is difficult to control the interstate movement of dogs.

According to the reports published following the International Medical Conference held at the Pasteur Institute in May of 1927, concerning immunization of animals against rabies, the opinion was expressed that it is desirable to immunize animals in districts where rabies is prevalent, using a single inoculation of killed or attenuated virus, repeating this at intervals of one year. The opinion was also expressed that the complete eradication of rabies depended upon the restriction of the liberty of dogs to the premises of their owners and the destruction of stray animals.

B. C. G.—Vaccination

Artificial immunization against tuberculosis as advocated and practiced by Calmette and Guerin, and their associates in France, is undergoing extensive trial in several European countries, and is the subject of considerable research and experiment in the United States and Canada. The reports we are receiving from Europe are remarkably favorable considering the short duration of the trials and periods of observations.

An *ad interim* report of the Health of Animals Branch, Dominion Department of Agriculture, Canada, states: Even admitting that vaccinated animals are more resistant than non-vaccinated, the tuberculous lesions found in the former, when killed at a young age, contained virulent tubercle bacilli. No conclusion is drawn as to the efficacy of B. C. G. vaccination, and it is pointed out that the real test must come after the vaccinated animals, particularly cows, have been for several years under the strain of reproduction and heavy milking, and have withstood the test of time. Furthermore, it must not be forgotten that B. C. G. vaccine is a living culture of bovine tubercle bacilli, which, it is claimed, has entirely lost its virulence and pathogenicity for all animals. Obviously, it is of the utmost importance to ascertain beyond doubt or question whether this is truly the case.

Avian Tuberculosis

The problem of avian tuberculosis has been largely an educational program in Meeker, Traverse, Red Lake, and Murray Counties.

Until June first, 1927, the work was conducted under the individual bird plan, that is, by testing every bird in the flock, but this was too slow and expensive. After June 1st, the flock plan was adopted, that is to test a percentage of aged birds in a flock and if reactors are disclosed, it is considered as an infected flock; the owner is advised to dispose of the entire lot of aged birds, to clean and disinfect the premises, and to raise the young chicks on non-infected grounds.

Murray County was the first county where it was undertaken to test the flocks in a complete township. The results in this township showed 73.49% of flocks infected, with 21 clinical flocks to which no test was applied.

To date the flocks in four townships have been tested, and the work is progressing in the fifth township.

Summary: Traverse County, 132 flocks tested, 72% infected; Red Lake County, 52 flocks tested, 72% infected; Murray County, 405 flocks tested, 48% infected.

Bovine Tuberculosis

During the past year, the control of this disease has gone forward under the same plans as during the preceding year. Indemnity is paid for tuberculous cattle as specified by law, when such cattle are tested under any of three plans in vogue in this state. The accredited herd plan, the modified accredited area plan, and under the owner's agreement plan. It might be well to note that Minnesota is

was one of the first states to pay indemnity for tuberculous cattle condemned as the result of private veterinarians' tests. No indemnity is paid for cattle condemned when tested in the South St. Paul stockyards.

Thirty-seven counties have registered signed agreements with the state and Federal government placing those counties under the county area plan. Of this number the work has been started in twenty-three counties. Of this number, twelve are fully accredited; there is one county under one per cent of infection and the balance are in process of accreditation. Eight new counties had the initial tests of all the cattle made during the past year and the three accredited counties, whose period of accreditation expires during present fiscal year were also retested. We believe, with possibly only one exception, that Minnesota was the first state in the United States to make a re-test of all the cattle in an accredited county that had been accredited for nearly the three-year period, and where the initial test in such county had disclosed more than 1% of infection. Those in direct charge of this work anxiously awaited the results of this retest. The actual test of an important plan or program was at stake. Results obtained upon the completion of the tests were very gratifying as it demonstrated that the control of this disease under this plan was practical, provided we have the co-operation of the cattle owners.

The retests of these three counties disclosed less than one per cent of infection in each instance. One county having an initial infection of 3.4% disclosed when retested only 0.46% of infection.

Cooperative Accredited Herd Work

The following is as concise a summary as could be prepared of the amount of tuberculin testing done during the past year:

Herds tested, 9,613.
Cattle passed negative tests, 180,506.
Cattle reacted, 3,458.
Total number of cattle tested, 183,964.
Percentage of infection, 1.9%.

There are 8,852 fully accredited herds in the state, 4,920 herds having passed one negative test, containing 78,854 cattle, and 1,420 herds disclosing reactors and containing 33,186 cattle.

Area Tuberculosis Control

Herds tested, 28,451.
Cattle passed negative test (estimate), 851,701.
Cattle reacted, 18,870.
Total number of cattle tested, 870,571.
Percentage of infection, 2.1%.

Private Testing

Cattle passed negative test, 174,800.
Cattle reacted, 5,462.
Total number of cattle tested, 180,262.
Percentage of infection, 3%.

South Saint Paul Testing

Cattle passed negative test, 60,177.
Cattle reacted, 2,315.
Total number of cattle tested, 60,966.
Percentage of infection, 3.6%.

Bacterins Administered Per Os.

The administration by the mouth of dead germs has apparently been effective in the prevention of typhoid and cholera in the human. In oral vaccination it is necessary to administer bile salts which are supposed to cleanse the intestinal mucosa of mucus exudate, thus permitting the ready access of the dead germs to cells of the mucous membrane. The oral vaccination against cholera has been tested in India as follows:

Of 4,982 persons that were vaccinated, 18 contracted cholera, four of whom died. Of 11,004 unvaccinated controls, 222 contracted cholera and 93 died. Of 8,485 persons that were vaccinated subcutaneously against cholera, 31 contracted the disease and 2 died, and of the 29,254 controls, 489 contracted the disease and 184 died.

Thus, the results obtained from the oral vaccination are apparently equal to the results obtained from the subcutaneous vaccination.

It may be possible that enteritis in swine can be more effectively controlled by oral vaccination. It is at least worthy of a trial. —(*Science.*)

COMPARATIVE ANALYSIS OF GOAT'S AND COW'S MILK

It is quite generally understood that goat milk is much more easily digested and assimilated than milk from a cow, but people who have not carefully studied and compared the two do not understand why one should be more easily digested than the other, they think that milk is milk and let it go at that.

In making this comparison of milk from the goat and the cow, I do not wish to be understood as favoring either to the detriment of the other, as I am not at present the owner of a cow or goat, but have used a considerable amount of both kinds of milk, and especially of the latter during the past few years.

For people in ordinary health cow's milk answers the purposes very nicely, being a nourishing and valuable article of food, but for infants with poor digestion and malnutrition and for invalids and persons in a run-down condition, goat milk has proved to be far superior.

In a bulletin issued by the United States Department of Agriculture, the following analysis is given of milk from a goat and cow:

Element	Goat's Milk, %	Cow's Milk, %
Water	85.6	87.5
Dry Substance	.7	.7
Casein	3.5	3.5
Albumen	1.3	.5
Fat	4.6	3.5
Sugar	4.3	4.3

From the comparison it appears that aside from there being a little less water and more albumen and fat in the goat's milk, there is not much difference between the two. But by going deeper into the subject we find this is not all the difference.

Pure cream is made up of a mass of fat globules, each globule in a little sack or capsule containing an amount of butter fat. The walls of the capsule containing this small mass of fat, vary in thickness and texture in the milk of different breeds of cattle. The walls of these butterfat containers or capsules, being only about one-half as thick in the milk of a Jersey cow as in the milk of most other breeds. This accounts for the fact that Jersey cream, under similar conditions, churns in about one-half the time required to churn cream from some of the other breeds.

Government tests, as well as hundreds of others, have proved very clearly that goat milk contains one-quarter more butter fat than the average milk from a cow. But the quantity is of less importance than the quality.

There are three important points of difference which determine the quality, namely, the butter fat capsules in goat milk are only one-quarter as large and the walls only one-quarter as thick and tough as those of cow's milk, and the fat itself contained in the capsules in the cream from goat milk is the most perfect and mild and easily digested and assimilated fat yet known.—V. M. Couch in the *American Fox and Fur Farmer.*

ANEMIA IN PIGS DUE TO LACK OF SUNSHINE

Can you inform me as to the cause and prevention of a condition in new-born pigs where the abdomen becomes dropsical and they live only a few days? One man has had this condition in his herd for some time. The pigs are farrowed normally, appear normal in every respect except for the enlarged abdominal cavity, which on autopsy discharges a straw-colored fluid.

Apparently, this man is feeding his herd good material and no spoiled foods of any kind, at least none that he mentioned.

If you can throw any light on the subject, both the owner and I will appreciate it.—E. C. W., N. Dakota.

Reply: From your description, we are of the opinion that the pigs in question are affected with an anemia. This condition is relatively common in the northern states and is apparently associated in some way with the absence of sunshine. Wherever the condition has been found, and it has been possible to get the little pigs into quarters where there was ample sunshine, they make a very rapid recov-

ery. Thus far, no medicinal agents have been found that are of any particular value.

We will be very glad to have you give a detailed description of the conditions under which these pigs have been kept. There is, of course, a possibility that feeding of the sows during the period prior to farrowing may have something to do with it, but according to investigations made in Indiana, it is purely a condition dependent upon the absence of sunshine.—A. T. K.

CEREBRAL SYMPTOMS DUE TO BIPOLARIS INFECTION

I am sending by express some specimens taken from a hog. This is the third that the owner has lost in the last six weeks. The symptoms were as follows: Temperature 107 deg. F.; excessive ptyalism; very nervous, throwing of head from one side to the other; the left side of nose would draw to one side and when the animal would start to walk forward, it would suddenly stop and go backward, shaking its head and would drop to the ground, but get up at once and try to squeal. She did not offer to fight or bite. This condition has developed only in brood sows.

The lesions found were: The wall of stomach was badly inflamed and thickened; the heart showed some petechial hemorrhages; the glands were all congested; the lungs light pink in color but very tough; the blood very dark.

This looks as if it might be hemorrhagic septicemia, but I am not sure. I am sending the brain so if you do not find anything else, examine the brain for rabies. These three are the only cases that I have had like this and they were all exactly alike.—H. B. H., Mo.

Reply: The specimens were subjected to various laboratory tests, including microscopic examinations of the brain for Negri bodies, but the findings all have been negative. The clinical manifestations in these three cases are suggestive of rabies, otitis media with meningeal complications and meningitis, induced by some specific organism as the *B. bipolaris.*

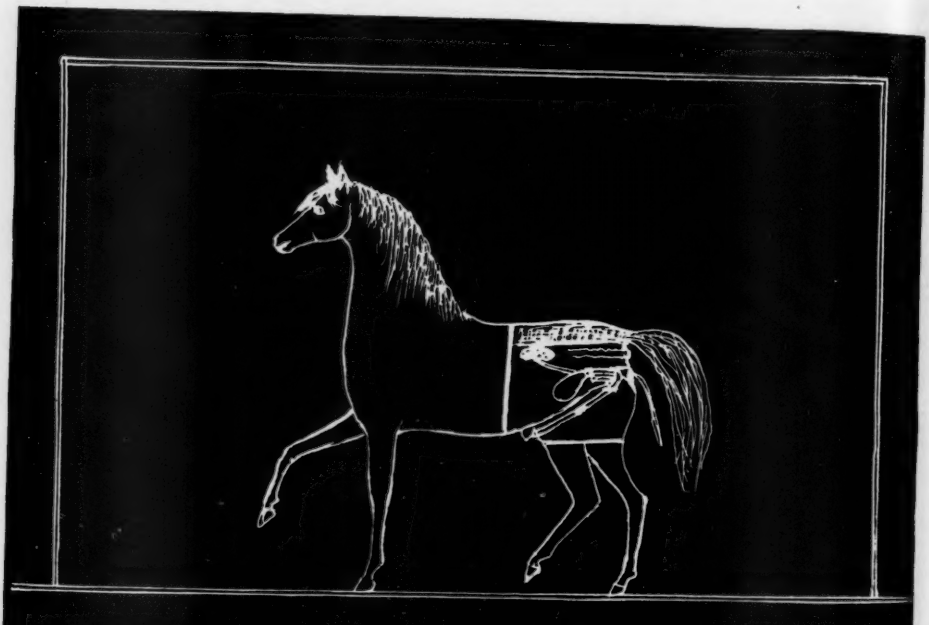
The negative findings of the brain examination, practically eliminates rabies. It is rather unusual for three successive cases of otitis media with meningeal complications to occur in one herd in rapid succession, and it is therefore probable that the cases in question are of a specific infection and although the laboratory tests did not reveal the *B. bipolaris,* it is possible that it is the offending agent.

We suggest that the feed be inspected to eliminate any possible source of disorder due to damaged food. The use of hemorrhagic septicemia bacterin will at least do no harm and by this means a resistance can be established that will probably prevent further losses from hemorrhagic septicemia.—A. T. K.

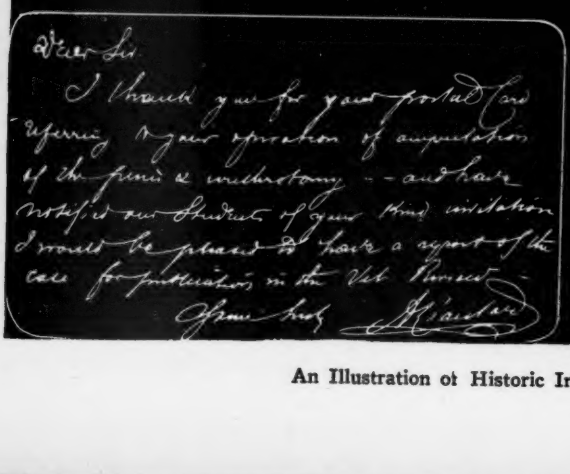
THE PROMOTION OF CALCIUM ASSIMILATION DURING LACTATION

Lactation is a physiologic process that makes unusual demands on the body. Some idea of what these may mean at the height of milk production is indicated by the recently reported record of a Holstein-Friesian cow that in a month had produced in milk two and one-fifth times her weight. Her highest production for one day was 137.4 pounds of milk and 5.93 pounds of butter. Such performances, like all secretory activities of the mammary gland, call for a supply of nutritive materials out of which the various constituents of the milk can be either directly derived or manufactured de novo. In all species, lactation therefore may act as a drain of greater or lesser magnitude on the resources of the organism. Experience indicates that the drafts on the antecedent nutrient reserves may not infrequently lead to some depletion of the bodily stores. There may be a "negative balance" of mineral constituents, notably calcium, as a result of the exceptionally large proportion of this element which milk contains. It is necessary that such losses be replaced readily or averted if the nutritive equilibrium of the milk-yielding organism is to be preserved. It has been well established that the assimilation of calcium in the growing organism may

be facilitated in a noteworthy degree by an abundance of sources of vitamin D in the diet at well as by its apparent analogue, exposure to ultraviolet radiation either in the form of the sun's rays or through artificial means. The production of milk is in many ways analogous to the growth of a special tissue. It involves the construction of a fairly uniform mixture of organic and inorganic substances out of the circulating mediums of the body. Recent studies at the University of Wisconsin by Hart, Steenbock, Kletzien and Scott have clearly indicated, through experiments on goats, that the antirachitic factor of cod liver oil is as effective an agent in promoting calcium assimilation in a lactating animal as it is in a growing one. In view of the impending



Permanent Urethrotomie first performed on a gelding by Dr. P. C. Juhl in 1883 at New York Veterinary Dispensary, 40th Street, New York City.



Dear Sir
I thank you for your postal card referring to your operation of amputation of the penis & urethrotomy - - and have noted in our Student of your third visitation I would be pleased to have a report of the case for publication in the Vet Review -
Yours truly

Postal relating to above operation from Dr. A. Liautard, founder of the first Veterinary College in the United States.

DR. P. C. JUHL
GRADUATE OF
R.C.V.S. COPENHAGEN

An Illustration of Historic Interest.

attempts to introduce "concentrates" of cod liver oil as sources of the effective vitamins, it should be noted that the Wisconsin investigators failed to secure improvement in calcium assimilation through administration of non-saponifiable fractions of cod liver oil (which contain the antirachitic factor) unless they were fed dissolved in oil. These studies point clearly to the desirability, in human nutrition, of insuring a good supply of vitamin D, the antirachitic vitamin, throughout the period of lactation. Obviously also calcium itself must be available in adequate amounts in the diet of the mother.—*Jour. of the A. M. A.*

COW HAS DIFFICULTY IN DRINKING

I shall be pleased to hear from anyone that can shed any light on the following:

A five-year-old Jersey cow, freshened some two weeks ago, perfectly normal in every respect in mouth, teeth, tongue. Ruminates and eats her feed, except she doesn't eat as much hay as normal.

This animal does not seem to be able to drink. She stands at the water tank for hours at a time and laps at the water until the surface becomes covered with foam.

I have observed her closely and she does not drink. Does not try to draw water into her mouth.

This animal has been in this condition for six weeks. She is losing flesh and decreasing in her milk flow. I have the owner drenching her with water daily.—W. F. H., Illinois.

Reply: There are two or three things that would come to one's mind at once. You, however, have eliminated the very first thing that would probably occur to a practitioner, that is, tooth trouble. And still this cow does not act like the larger animals do when they have a sensitive tooth. Such an animal usually drinks water with the chill off all right, but if given cold water, the instant that the cold water strikes the tooth, the animal is apt to throw up its head and drop the water. With tooth trouble an animal is also likely to slobber a good bit in chewing and frequently drops the partly chewed food, particularly roughage.

Naturally, we always examine the mouth and throat for foreign bodies. The more we see of the tremendous advantage of the x-ray machine in small animal practice, the more we wonder if we are not blundering a good bit in the case of larger animals. To realize this, we need but call upon some up-to-date small animal practitioner who is using the x-ray daily.

Not long since, Dr. Russell of Concord, N. H., showed me a picture of a cat that had been brought to his hospital, indicating a foreign body in the throat. He could not locate it, however, but the fluoroscope made plain a needle imbedded at the base of the tongue.

A day or two after, Dr. Lewis of Nashville, N. H., showed me a very interesting and perfect picture of a fish hook hanging in the top of the cecum of a dog. In case of larger animals, both of these foreign bodies would probably have remained undiscovered, and the ailments they occasioned would have remained mysteries.

In your case, we must not overlook the possibility of a partial paralysis of either the tongue or the pharynx. This condition is not uncommon as you know in the human family, following what is termed a light stroke.

I realize we are still at sea and have not made a diagnosis. However, these suggestions may help you indirectly, or some kind brother practitioner who reads this may be good enough to write us something more definite for which we all would be mighty grateful.—J. F. DeVine.

Of the 598 primary outbreaks of hog cholera in Maryland during 1927, 502 were apparently due to infected pork reaching the hogs through garbage, table scraps, kitchen swill, slaughter house and butcher shop offal, etc. This is 90% of the total cases in which it was possible to determine the source of infection. Of these 502 outbreaks 69 or approximately 14% were in what might be termed garbage feeding plants although in several cases only a few hogs were involved.

CONVULSION A SEQUENCE OF LAMINITIS TREATMENT

I was called to treat a nine-year-old grey mare, weight 1600 pounds, suffering apparently from an acute attack of laminitis, also tendinitis. The temperature was 103° F.; the pulse full, hard and bounding; and loss of appetite.

On being moved, the horse would place the hind feet well under body and pick up front feet gingerly, typical of acute laminitis.

I gave a physic ball, also 15 m. of F. E. aconite; bandaged the legs from the knee down, including the feet, with cotton and bandages, and had the owner apply cold water every thirty minutes. I put the mare on F. E. aconite ℥ ii, F. E. belladonna ℥ iv, F. E. colchicum ℥ iss Potass nitrate ℥ iv, aq. qs. ℥ xxiv. M. Two ounces of this mixture in six of water to be given every three hours.

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Thinking probably the spasms were due to some digestive disturbance, I then gave one-quarter grain eserin, 2½ grains pilocarpin hydrochlorid, ¼ grain strychnin, subcutaneously in two doses fifteen minutes apart.

After giving the latter, the mare had no more spasms, but passed quite a lot of gas and in one hour got up and within thirty minutes had four small bowel movements. But upon rising to her feet, she was about as stiff and sore fore and aft as any horse I had ever seen, but came out of that quite a lot before the end of thirty minutes. I gave her a physic ball and left. This morning the owner reports mare still standing but doesn't care to drink or eat, but not very sore or stiff.

What I want to know is, was I right in thinking the spasms were due to some digestive disturbance. The owner tells me the feces passed during the night were quite dry and hard. If I am not right in my diagnosis, what was the cause?—A. C. K., N. Dak.

Reply: You have overdoctored your founder case. In the first place, it was a mistake to blister the leg and foot of a case of acute laminitis of three days duration. In the second place, you will have much better luck with this trouble if you do not administer an aloetic ball; and finally, potassium iodid is not necessary and is probably harmful. A horse affected with a serious intestinal irritation, given a dose of aloes, a blister on both legs and approximately three ounces of potassium iodid during the acute period has every reason to have convulsions.

We treat laminitis with small repeated doses of oil, aconite, cold swabs and some forced exercise every day, two or three times, and encourage lying down. There is no need of any other treatment. Blistering a chronic case may be defended, although I have yet to see any benefit therefrom. You tried to do too much for your patient in the medical way.—L. A. Merillat.

IMMUNIZE TO GUARD AGAINST HOG CHOLERA

Hog Cholera is spread by:

1. The Infected Hog.
2. Dogs, buzzards and other animals that have fed upon the carcasses of hogs that have died of cholera.
3. Table scraps and garbage containing trimmings, rind or bones originating from cholera infected pork.
4. Stock-food peddlers, hog buyers and others who tramp through pens containing infected hogs.
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I asked the manager of the new milk plant in Starkville, Mississippi: "With your great market, which you say is New Orleans, why did you locate here and not in Louisiana?" The manager replied: "We wanted to locate in Louisiana, but we found the Louisiana cattle ticky and yielding too little milk to keep our condenseries running at proper capacity. With the tick there, it was impossible to improve the milk breeds. So I make a personal survey of Mississippi. In this county I saw herds of fine, thrifty Aberdeens. I said to myself, where they can raise beef cattle like that they surely can raise good cows that will produce plenty of milk. After months of operation, we are almost doubling our factory capacity."—R. A. Ramsey.

And what about Louisiana? Because of the tick, she still has to import yearly $30,000,000 of dairy products from the outside States. The tick is certainly a costly boarder to that State. Well, I am still an optimist on Louisiana notwithstanding the fact that I meet some opposition. Not long ago a resident of that state expressed to me some apprehension as to the Legislature's appropriating $200,000 per annum to be expended in eradicating cattle ticks. Why that would only be two-thirds of one per cent on $30,000,000 sent out of the state annually for necessary dairy products. I have yet to be convinced that the business men, planters, cattle owners, members of the legislature and others will longer allow this condition to continue.—R. A. Ramsey.

The ox warble is apparently an important economic problem in England for a committee of ten was appointed by the Minister of Agriculture and Fisheries to investigate and recommend ways and means of exterminating this pest. This committee found that by the application of certain agents the number of warbles could be reduced probably 50 per cent. This procedure combined with the individual destruction of the larvae from February to June, the committee believes the most effective means of reducing the ravages of these parasites. *Exp. Sta. Rec.* Vol. 57, No. 6, pp. 560.

"Ultravirus tuberculeux" is a name designating a filterable virus stage of the tubercle bacilli. Thus, according to Calmette et al, there are virulent elements in cultures of tubercle bacilli and in tuberculous material that are filterable through Chamberland L_2 candles. These elements are also ultramicroscopic and when injected into female guinea pigs before or during gestation, they are capable of passing through the placenta into the fetus and producing tuberculous lesions from which non-filterable, acid fast forms of tubercle bacilli can be recovered. This finding was further supported by Calmette and his coworkers on tuberculous pregnant women and their offspring. Six dead babies, four still born and two dead without apparent cause, were subjected to postmortem examination and further research. In three of the four still born, tubercle bacilli were found in the broken down gland tissue. Ground up organs from the two infants that were dead without apparent cause, gave positive results when inoculated into susceptible animals. Thus, it is claimed that the transmission of tuberculous virus, filterable and ultramicroscopic from a tuberculous mother to the unborn child is more frequent than has up to the present been supposed.

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No farmer has a bookeeping system that will enable him to keep accurate track of the tick's board bill in blood and in milk. And it would be still harder to visualize this into tons and bushels of wasted feed and acres of pasture or corn land actually made unproductive. But the effect on the country is there just as truly as if the giant ticks were actually draining and killing the 1,575,000 cattle now under quarantine.—R. A. Ramsey.

Scrotal hernia in swine is a defect that is heritable, according to Warwick. The doctor has previously reported that approximately 2¼% of male pigs had umbilical or navel hernias. To diminish the occurrence of hernias in swine, Warwick suggests the elimination of boars that have or have had a hernia, also those that have sired ruptured pigs. Sows also should be eliminated that have farrowed ruptured pigs. Litter mates of ruptured pigs should not be used for breeding purposes.

By following these general rules, the percentage of ruptured pigs will be reduced to a minimum.

Previous to 1927, 126 cases of tularemia, a disease communicable from animals, chiefly rabbits, to man, had been identified in the United States. During 1927, 173 cases were identified. This would indicate that prior to 1927 practicing physicians did not recognize the disease or the disease is rapidly increasing in prevalence. In any event, tularemia is of considerable importance and veterinarians should inform themselves as to the chief characteristics of the malady.

Rocky Mountain spotted fever was responsible for 56 deaths in the United States in 1926. This disease is confined to the North Western states, Bitter-root Valley, Montana, being regarded as the center of the infected area. It is a tick borne disease, a number of wild animals indigenous to the territory constituting the reservoir for the infection.

Breeding is the regulation of the progeny by the control of the parents with a view to improvement. Breeding is an art, not a science. Science is a matter of absolute accuracy. Art is always approximate. No man ever made a mating and secured exactly what he bred for. Variation is at once the hope and despair of the breeder. Breeding is constructive; it is building something; going somewhere with a definite object.—C. W. Gay.

Every individual is made up of a multitude of characters, the more highly organized the animal the more complicated these characters become. They are of two classes, dominant, those you can see and recessive, those you cannot see. Recessive characters come forward in the absence of the dominant and therefore are important to the breeder. The transmission of characteristics is not from parents to offspring, but from ancestors to offspring through parents.—C. W. Gay.

Rabbit pelts are marketed as Arctic seal, Baltic seal, Bay seal, French seal, leopardine, Mendoza beaver, sealine, beaverette, marmink, and other fanciful names, in addition to their correct name.

The fur trade in this country has grown from $44,000,000 in 1914, the year the war broke out, to $254,000,000 in 1927. For this our women are chiefly responsible. It is quite unusual to see a woman in public who is not wearing more or less fur. The majority do it because they never trouble themselves to think.—Our Dumb Animals.

The following combination has been suggested as a vermifuge for horses and mules infested with strongyles:

Turpentine	125 cc.
Chloroform	25 cc.
Castor oil	300 cc.

This dosage is for a horse weighing 1,000 pounds and should be varied according to weight. For quick and probably more effective results the administration of pilocarpine or arecolin 15 to 30 minutes later is advised.

Reviews and Abstracts

Results of B. C. G. Vaccination[1]

I have only a few minutes in which to deal with the point of my lecture to which I attach most importance, and that is the new suggestion as to how cattle and also human tuberculosis can be dealt with. It is, for convenience at any rate, associated with the name of the distinguished continental bacteriologist, Calmette. He has recently put before the medical and the veterinary world the suggestion that the disease should be attacked by a method of vaccination, to be applied to infants newly-born and, in connection with animals, to calves as soon after birth as possible and not later than one month after birth. What is essential for the purpose is an artificial culture of tubercle bacilli. It was originally a virulent bovine strain of tubercle bacilli and, after culture for sixteen years in a laboratory, under conditions not favorable for growth, the bacilli gradually diminished in virulence, until the authors (there were three very distinguished men associated with the work) were able to show that the bacilli could be injected in large doses into susceptible animals, including chimpanzees, the latter to provide evidence of the safety of the vaccine for human beings. The results indicated that there was no danger in inoculating animals or feeding infants or children with this material. It is only in the course of the present year that detailed evidence of what can be achieved in this way has been forthcoming and I shall endeavor in a few sentences to state what the result has been. A particular French farm was put at the service of Dr. Calmette (and his co-workers) to try the method, and this herd was a very suitable one for the purpose. It was a dairy herd, including, altogether, about sixty animals. It was a self-contained herd; that is, the heifers were reared mainly on the farm, and the inducement held out to the owner was this:—"If you will allow your calves to be vaccinated after birth, or before they become infected, they will be immune within three weeks' time. They will have an immunity that will enable them completely to resist infection when standing in and forming part of this highly-infected herd. The immunity will not be permanent; it will therefore be necessary to re-vaccinate, probably once a year, so that the first calves will all be vaccinated, also your previous year's calves will be vaccinated again, and so on." And it was said to the owner: "If you will do this you can obviously replace your herd within five or six years, because by that time the un-vaccinated cows that you started with will have been got rid of in the natural course of events, and it will not be necessary for you to practice disinfection or any separation, and the thing will be comparatively inexpensive." On this particular farm the first inoculation of the calves was made in 1921 and at that time the herd numbered sixty-four animals; it included a large num- of cows that had been condemned in consequence of reaction to tuberculin, but these were all to be left in the herd, at any rate as long as the owner did not wish to put them out for the usual reasons—that they were too old, or not good milkers.

It is of the essence of the scheme that one must not attempt to give immunity to animals that are known to be infected, or vaccinate animals that are more than a month old. Immunity is obtained only if the animals are vaccinated before they are infected. On January 1st, 1927, there were sixty-nine animals in the herd, or five more than there were before the vaccination was begun. There remained only eleven of the original herd and it was known that at least one of these was tuberculous. What had happened during that period of six years was that, apparently in consequence of the vaccination, no single animal born in the herd contracted tuberculosis.

[1] Excerpt from a public lecture on The Prevention of Tuberculosis in Animals, by Sir John M'Fadyean, M.B., B.Sc., M.R.C.V.S., LL.D., delivery at Torquay, England, during the 49th annual congress of the National Veterinary Medical Association of Great Britain and Ireland, September 13-16, 1927.

Naturally you will ask, "What is the proof of this?" It is not furnished by the tuberculin test, because that cannot be carried out while the process of eliminating tuberculosis is going on, since the vaccination is a genuine infection and while the bacilli are present in the body, the animals will react to the test.

During this period of six years thirty of the animals bred in this herd and vaccinated as calves went to the butcher as steers and were all submitted to post-mortem examination at an abattoir, and not one of them was found to be infected.

During the same time, among the original cows and other animals in the herd that went to the butcher, ten were found to be infected and most of them extensively.

In this experiment there were no control calves left unvaccinated, but one must admit that that was hardly necessary because, be it remembered, no attempt was made to prevent the infection passing from the original members of the herd infected to the extent of 47 per cent. before the experiment began; nothing was done to prevent the disease spreading from these to the vaccinated animals at any time during the six years.

Calmette and his co-workers deserve very great credit in connection with this because they produced their evidence, they laid the whole of their cards on the table, they have offered to supply the vaccine in any reasonable amount to the Government of any country, in order that it may be tried to see whether the results pan out as they did in this French herd.

In this country the vaccine has already been supplied, I understand, to the Ministry of Agriculture and I think it is very desirable that the method should be tried on a considerable number of cases. If results of that kind can be obtained in ten similar herds, nobody will doubt that a method of dealing with tuberculosis that is better than anything hitherto recommended has been discovered.

[1] Abstracted from an article by Cambau and Bachala in *Recueil de Med. Vet.*, 1927, 103: 428, by M. C. Brown.

[2] Abstracted from an article by Chas. Richet and P. Lassabliere in C. R. Acad. des Sciences, 1926, 182: 1502-03, by M. C. Brown.

Treatment of Chronic Eczema of the Horse by Injections of Sterilized Milk[1]

The usual treatment of chronic eczema (sulphur, arsenic, cade oil in cutaneous applications) having given no beneficial result in a seven-year-old horse, 20 cc. of whole cow's milk were injected after sterilization, subcutaneously in the neck in two places. Five separate injections were made at intervals of two days. A complete cure resulted in less than three weeks. A recurrence several months later was treated in the same way and with the same result.

Nutritional troubles (retention of the chlorides and phosphaturic diabetes) explain the recurrence and the impossibility of a definite cure.

Protective Effects of Saline Injections Preliminary to Anesthesia with Chloroform[2]

All surgeons and physiologists know that the chief danger in chloroform anesthesia is cardiac syncope. It is, then very interesting to find a means to prevent this intoxication of the cardiac ganglia.

Atropin, scopolamin and other substances have been employed sometimes for this purpose but their use is not without inconvenience and results are often contradictory. We have found that if, before the inhalation of the chloroform, the injection of a hypertonic solution of sodium chlorid is made, no cardiac syncope is produced provided that the quantity injected is sufficient.

Chloroform was always administered in the same way. A known quantity (12cc.) was poured upon some cotton wool, placed in the mask, taking care that the air should enter in sufficient proportion.

Here are some examples of anesthesia after saline injection:

No. 1. A dog of 18kg. (40 lbs.) receives an injection of 180cc. of a solution of sodium chlorid, NaCl 28gm., water 1,000cc., which is nearly 5 times the so-

dium chlorid strength of physiological saline solution. He inhales at first, 12cc. of chloroform and at the end of five minutes he is not asleep. Ten cc. of chloroform are then given and a minute later, he is asleep, profoundly. The heart and the respiration function irreproachably.

No. 2. A female of 13kg. (28 2/3 lbs.) receives 130cc. of a salt solution of 9gm. per litre. The anesthesia is difficult. An enormous dose of 52cc. of chloroform brings total anesthesia only after 21 minutes; the heart and respiration are not impaired.

No. 3. A dog of 12kg. 500 (27½ lbs.) receives 125cc. of a solution, 38gm. to the litre (which is the content of sea water in chlorid of sodium). Sleep comes with difficulty and only at the end of 18 minutes after the enormous dose of 60cc. of chloroform. Heart and respiration have never been in danger.

Let us oppose to these three experiments, the anesthesias made on dogs not having received the saline solution beforehand.

No. 4. One dog dies in cardiac syncope one and a half minutes after inhalation of 12cc. of chloroform.

No. 5. One dog, after inhalation of 22cc. of chloroform is completely anesthetized. Heart and respiration function well. The chloroforming is stopped but after five minutes of respiration which appears normal, the heart stops definitely.

No. 6. One dog inhales 12cc. of chloroform. At the end of two minutes, cardiac syncope. In spite of artificial respiration, death ensues.

No. 7. At the end of six minutes of chloroform inhalation (10cc.) comes syncope and death.

No. 8. A dog at the end of three minutes of inhalation, 10cc., dies of cardiac syncope.

Here is another experiment which shows clearly the influence of the preliminary saline injection; if the quantity injected is too weak, it appears to have no effect.

A dog of 18kg. (40 lbs.) receives intravenously 5cc. per kilogram (in place of ten which the other dogs received) of a solution of chlorid of sodium, 38gm. per litre. Inhalation of 12cc. of chloroform. Dead at the end of one minute by cardiac syncope.

We present these facts only as a preliminary communication, because there still remain conditions to be determined.

It has appeared to us to be important, considering the absolute harmlessness of the saline injections to show that while the resistence of the heart is enormously increased, we see six times as great quantities of chloroform bring no threat of syncope in the dogs injected.

However, we must note that there is an inconvenience in this injection, to wit, a greater resistence to the anesthesia itself. The animals injected resist sleep so that it is not only the cardiac ganglia which become more refractory to the chloroformic intoxication but also the cells, motor and sensory, of the central nervous system.

There are also differences in the reactions of the heart in the dog and in man which one cannot without an inexcusable recklessness overlook. It is this clinical observation which will and should determine.

It will be for surgeons to decide whether a resistence greater than the general anesthesia compensates for a greater resistence to cardiac intoxication.

Causes of Certain Lesions Found in Domestic and Wild Carnivora[4]

The author attributes to nutritional troubles the lesions sometimes observed in carnivora, domestic or wild.

Since experimental and clinical facts prove that in the rat and in man xerophthalmic lesions are determined by insufficiency of the factor A in the ration, ocular changes thus occurring must be due simply to the default of this factor.

The cornea has a relaxed nutrition and,

[4] Abstracted from an article by A. Monquet in Bul. Soc. Scientifique d'Hygiene Alimentaire, 1927, 15: 1, by M. C. Brown.

in its composition, one notes some collagen, a mucine and abundant salts of calcium. One can then reasonably believe that a failure of the antirachitic factor might influence the calcium salts of the cornea.

Besides, the lack in the ration of certain proteids would have a bearing upon the glycoproteids of the cornea and the guanin of the choroid. Under these circumstances, the author thinks the troubles attributable to associated nutritional default in the alimentation of certain carnivora.

Regional Anesthesia[5]

In veterinary practice spinal (Epidural-Benesch) anesthesia is a simple and practical method of obtaining complete anesthesia of the posterior region. It can be substituted advantageously for general anesthesia where it is impossible to get competent helpers or where general anesthesia is contra-indicated.

A one per cent or a three-fourths of one per cent solution of cocain, novocain or stovain is used. In horses and cows the injection is made in the lumbo-sacral space. In dogs it is advantageous to make the puncture a little more forward; between the sixth and seventh lumbar vertebrae. One thus obtains a complete anesthesia of the whole region situated in back of the umbilicus.

The Destruction of Parasite Eggs[6]

After many experiments it was found that the vapor of commercial ammonia is decidedly toxic for the eggs and larvae of Hexapods (lice) in from two to three minutes.

It takes a longer time to destroy the eggs of the Arachnida (tick, mites) but prolonged contact does produce a slow death. Consideration has to be given to the fact that too prolonged contact of the body with ammonia causes a burn.

However, from their numerous experiments they arrive at the definite conclusion that it is useful to try ammonia vapors to kill the larvae and prevent the hatching of the eggs of these parasites.

Dog kennels sprayed with ammonia solution could be easily freed of these parasites.

The authors ask all interested to verify the following fact, that no ticks are found in the immediate neighborhood where manure is piled or spread around. They recommend the aid of ammonia in destroying tick ova on dogs.

Tetrathyridium and Mesocestoides[7]

From a series of experimental researches, M. Henry has proved that the *Tetrathyridium Ballette* of the cat and dog is indeed the larvae of *Mesocestoides lineatus* of the intestines of the cat and dog. In place of being transformed in adults in the intestines certain Tetrathyridium introduced into the stomach through the mouth can regain the watery stages (cystic) in order to remain there in the larvae state. Finally, the development of *Mesocestoides lineatus* appears to be very slow, with a dog about five months have been necessary in order to obtain the complete development. The direct evolution is carried on in the dog and cat, but the intermediary hosts are not known.

Translator's note: Tetrathyridium Ballette French, or Pleurocercoides Bailleti English is listed by Hutyra & Marek; (page 179, Volume II Second American Edition) as producing pleuritis in dogs and cats, also found sometimes in association with ascites. (p. 628) and mentioned by Sendrail and Cuille as an abnormal form of the cyst of *Mesocestoides lineatus*.

Mesocestoides lineatus is an echinococcus described (p. 628, vol. II, H. & M.) as found in the intestines of dogs in the neighborhood of Toulouse, France. Neveu-Lemaire mention this parasite under the name *Dithyridium elongatum* (*Cysticercus elongatus*) as the evolutionary form of a taenia which was unknown hitherto.

[5] M. P. Limousin in *Revue Veterinaire* for November, 1927; abstract by J. G. Horning.

[6] Granouillit, Thu and Khoen, Cantho Indo-China, in *Revue Veterinaire* for November, 1927; abstract by J. G. Horning.

[7] Translated by J. G. Horning.

Double Vaccination Preferred for Prevention of Anthrax

In two articles published in the Annales de l'Institut Pasteur of November, 1925, and January, 1926, Ch. Hruska devotes his attention to an examination of the first and second Pasteur vaccines in regard to, first, their effects upon the animal organism, and, second, to the recovery of their activity and the degree of the recovery of these two vaccines.

In the first, he discovers no increase in activity. Cases of mortality occurring he attributes to either reaction from the inoculation or to some latent infection.

The second vaccine, however, preserved by successive cultures on gelose, gradually loses its virulence with the rabbit and guinea pig but should remain active enough to insure a solid immunity in the animals vaccinated. If resistance to the natural infection is not attained, the animal must be vaccinated twice a year or a third injection of the second vaccine should be made using 1 centimetre for cattle and horses and ½ centimetre for sheep.

In hyperimmunization of horses, cattle and sheep against bacteridian anthrax, the method of injection is subcutaneous or intravenous, tests having been previously made on rabbits and guinea pigs. The serum is inoculated sub-cutaneously and followed within twenty minutes to 48 hours by inoculation of the culture. From his investigations, the author finds no great difference between the normal serums of beef, horse or sheep and specific serums obtained from the same species of animals. His investigations explain the favorable results obtained by Kraus, Beltrami, Penna and Cuenca in the Argentine in the treatment of malignant pustule in man.

He devotes some study to a comparison of the Sobernheim anti-anthrax sero-vaccination with the Pasteur method. The Sobernheim method is a single vaccination of anti-anthrax serum mixed with an attenuated culture equivalent to the second Pasteurian vaccine. He shows the technic as bad and assigns a much greater security to the Pasteur method of two vaccines over the single vaccination of Sobernheim.

Virulence of the Cephalorachidian Liquid in Distemper[8]

The experimental work of Puntoni in *Nuova Veterinaria* in 1923 and 1924 showed that if one inoculates young and susceptible subjects with cerebral substance of dogs having succumbed to distemper and its nervous complications, the animals inoculated die after a variable period having shown symptoms of the natural malady.

The researches which we relate here have been made by using as a source of virus the cephalorachidian liquid from six subjects presenting independently of other signs of the disease, manifestations of encephalitis or of acute encephalo-myelitis.

The cultures made on divers media with the liquid collected by atloido-occipital puncture remained without result.

We used as experimental subjects young dogs of three to seven months of age, kept in complete isolation, sheltered from all natural contamination.

In all subjects, the virulent material was inoculated by direct puncture of the atloido-occipital area in a dose of 1 cc. Two dogs probably immunized by previous attack remained absolutely unaffected; three presented manifestations hereafter described and completely recovered. Six succumbed in 6 to 21 days.

In nine subjects thus inoculated with success after a period of incubation varying from three to nine days, show in the region of the shoulder and the base of the neck, very violent tremblings and contractions, not continuous, separated by intervals of five seconds or more. Several show rhythmic contractions; one of the inoculated shows before succumbing, hemiparesis and immobility.

In the animals which do succumb to the effects of the intra-rachidian inoculation after more than ten days, the temperature rises toward the end of the first week to 40 degrees C. and over; it remains at this

[8] Abstracted from an article by V. Robin and A. Vechin of the Laboratory of Clinical Medicine of the School at Alfort, in C. R. Soc. de Biol., 94; 1351-52, by M. C. Brown.

temperature with slight oscillations until the approach of death which arrives with hyperthermia. Although the appetite is generally good or only slightly lessened, the animals become thin and, except in animals dying in less than a week, a vesico-pustulous eruption, not pronounced, is noted from the 6th to the 15th day, complicated in two cases with keratitis, accidents of balanitis or of vulvo-vaginitis, of nasal catarrh and, exceptionally of diarrheic enteritis.

The cephalorachidian liquid has also been inoculated in the veins in four young dogs; two are dead, two resisted but all presented after three to seven days, the morbid manifestations described, except the nervous localizations.

The series of experiments was intended for the study of the virulence of the cephalorachidian liquid for animals attacked with the experimental disease. The liquid taken in the course of the second week from two subjects presenting the muscular tremblings already described was injected by the atloido-occipital way in five dogs. Three succumbed, two, attacked, recovered. The intravenous inoculation was made with five other subjects; one alone showed no indication of the disease, the four others were receptive, two dying and two getting well. The period of incubation varied, as in the first series from three to nine days, the morbid manifestations coinciding with those observed in the natural malady, death, when it happened, taking place in six to eighteen days.

Lastly, we tried to determine some of the factors of immunity.

The intra-rachidian injections made with doses of 3 cc. to 4 cc. of virulent liquid on dogs from two to four years old gave negative results.

Five dogs, recently cured of the natural malady and inoculated by the rachidian or intravenous method encountered no accident.

Two subjects chosen among the survivors of the first and second groups betrayed only a moderate hyperthermia and some pustules, and received 30 days after recovery 2 cc. of the virulent liquid in the rachidian canal; in both, at the end of six days we observed a new ascension of the thermic curve which lasted a week and was accompanied by a slight eruption of the skin. On the contrary, two others which had resisted a first inoculation but had presented, with a marked intensity, the nervous and catarrhal troubles, proved completely refractory to a second test made seven weeks after the first.

Udder Diseases of the Cow[9]

This timely book of 213 pages is the result of an effort by the author, Dr. A. S. Alexander, to make available to others the things learned in his nearly half a century of experience as a farmer, veterinary practitioner, dairy inspector, teacher, lecturer and consulting veterinarian. That he should have chosen this time when the interest of the veterinarian in the subject is keener than ever before, is a striking evidence of the close relation that the author maintains with the profession even now, as he nears three score years and ten.

This work is comprehensive in scope, nothing affecting the udder directly or indirectly is omitted; it is brought right down to date, the results of research and of practical experience in this field being given; it is conveniently arranged for study or reference with many subdivisions of each subject and all presented in the direct, pleasing style for which the author is noted.

It is a work no veterinarian who gives any attention to dairy practice can afford to be without. An idea of the scope of the work may be obtained from the following chapter headings: Structure of the Udder; Diseases of the Udder; Teat Sores and Injuries; Surgery of the Teats and Udder; Systemic Diseases Affecting the Udder; Conditions Affecting Milk Yield; Vices; Abnormalities of Milk; Milk Hygiene; Examinations and Tests for Soundness; and Disinfection and Disinfectants. It is to a considerable degree a work on milk production and contains many items of useful information scarcely to be expected in a treatise on this subject.

[9] Udder Diseases of the Cow and Related subjects, by A. S. Alexander. F. H. A. S., M. D. C., Professor of Veterinary Science, University of Wisconsin. Cloth bound, 213 pages, 25 illustrations, Price $2.00. Distributed by the A. B. Alexander Sales Agency, 306 East Wilson St., Madison, Wis.

TEXAS VETERINARIANS AN ECONOMIC AND A PUBLIC HEALTH ASSET TO THE STATE

"Veterinarians, members of that branch of medical profession which administers to the domestic animals which serve mankind as food, bearers of burdens, or friends, are important factors in bringing about better health conditions among human beings and are saving the live stock producers millions of dollars by eliminating sickness among his herds," was a declaration made by Dr. Holman Taylor of Ft. Worth, secretary of the State Medical Association and editor of the Texas State Journal of Medicine, in welcoming the Texas Veterinary Medical Association to Fort Worth on the occasion of its fifth semi-annual meeting, January 23-24, 1928.

"To the veterinary profession has been credited the eradication from large areas of bovine tuberculosis which heretofore, to a great extent, was responsible for many deaths among infants, whose chief nutrition came from cow's milk. Veterinarians are also responsible for the extermination of anthrax, that dread disease, which, in many instances, caused death among human beings. This profession is also to be thanked for the eradication of rabies in communities where mad dogs have run at large and bitten human beings," continued Doctor Taylor. "Besides this, the profession has given protection to the live stock owner in the eradication of diseases and in advising concerning correct feeding of live stock, which will promote the early development of the animals and allow early marketing."

An animated discussion centered around a cattle disease known as anaplasmosis, which broke out about seven years ago in Oklahoma and which may have come into Texas, although no definite cases have been identified in Texas, according to Dr. Hubert Schmidt of the State A. and M. College.

Dr. C. C. Hisel, state veterinarian of Oklahoma, answered many questions concerning this disease.

Dr. Scott A. Burnham, of Clarendon, read an interesting paper on Hydrops Ascites, the doctor reporting the disease to be prevalent in young steers. It is commonly known as "water belly." The treatment is symtomatic.

Dr. T. O. Booth, Laboratories, director Live Stock Sanitary Commissioner of Texas, interested his hearers by a well-worked plan of tests and sanitary methods of taking care of poultry from a standpoint of public health economics.

Dr. T. C. Terrill of the Terrill Laboratories, Ft. Worth, Texas, gave a lecture with lantern slides on rabies, giving records of test animals, strength of virus and length of time necessary to kill virus with antiseptics; various periods of incubation in man and animals and answered many questions as to the first aid treatments. He has treated 4,200 cases, with only two fatalities.

Dr. H. O. VonRosenberg, first assistant state veterinarian, Live Stock Sanitary Commissioner of Texas, contributed much by his clean-cut statistics of loses of man and beast as well as financial losses in his paper on Bovine Tuberculosis testing in the field.

Dr. J. S. Grove, veterinary inspector in charge of meat inspection in Ft. Worth, gave an interesting lecture on post mortem examinations and the value of meat inspection to the public health; discussing adulterations used by the packers, also coloring matters used in the process of bleaching and the poor materials in cheaper meats. He gave some information also as to shortage of B. A. I. veterinarians, stressing the matter at length of the need of more qualified men.

It was a great privilege to have Dr. Livingston Anderson, laboratory director, State Board of Health, address us on reacting tuberculous cattle. He made the assertion that the veterinarian and the M. D. are the only men capable of making good sanitarians. He also gave some interesting experiences in his work giving an example of a veterinarian who had condemned nine reactor cows that showed no lesion on autopsy; the board of health called him a fool for slaughtering same. Dr. Anderson took specimens from these non-lesion reactors and inoculated guinea pigs and showed the board of health the test was 100 per cent positive.

Dr. Anderson advised us not to be discouraged by a report from the packer that you have condemned a no lesion reactor, for you have a tuberculous animal just the same. He proved his friendship for the veterinarian.

More than a hundred members attended the convention. The officers were: M. E. Maier, president; M. E. Gleason and V. J. Aiken, vice-presidents, and Dee Pearce, secretary-treasurer.

The ladies' auxiliary also had their meeting. Mrs. U. E. Marney of San Antonio is president, Mrs. R. P. Marsteller of College Station and Mrs. L. E. Warner of Dallas, are vice-presidents; Mrs. W. R. Sanderson of Brownwood, corresponding secretary, and Mrs. Dee Pearce of Leonard, secretary-treasurer.

An enjoyable banquet was held at the Texas Hotel and a lunch at the Blue Cross Animal Hospital. The meeting was unanimously voiced the best ever held by the association.

LOUISIANA VETERINARY MEDICAL ASSOCIATION

The 1928 meeting of the Louisiana Veterinary Medical Association held in Baton Rouge, Feb. 15-16, was a huge success from every angle.

The program for the first day of the meeting included: Sterility in Cattle by Dr. Harry Morris, Veterinary Department, Louisiana State University; Tick Fever in a Herd of Pure Bred Jerseys, by J. A. Goodwin; Inter-State Health Certification, by E. P. Flower, state veterinarian; The County Agent and the Veterinarian, by W. R. Perkins, director extension, Louisiana State University; and Anaplasmosis, by G. Kidmans, F. J. Douglass and E. P. Flower.

Election of officers resulted in reelection of

the old officers, i.e., F. A. Hoell, Mansfield, president; A. D. Kendrick, Homer, vice-president; H. A. Burton, Alexandria, secretary-treasurer. Ten new members were elected. Coffee and ice cream were served by the University.

A banquet at the Heidelberg Hotel was enjoyed. Guests were members of the Extension Department.

The program on the 16th, under the direction of Harry Morris of the Veterinary Department of the University, was a real treat. It included discussions of the following subjects by members of the University Staff:

A Microscopic Study of Blood, Anaplasmosis—Preparation, staining and examination of blood smears, Short Method of Making the Agglutination Test for Infectious Abortion, Fecal Examination for the Presence of Parasitic Ova, Parasites of Dogs, Poisonous Plants, Mammals of the Glacial Period in Louisiana, Effects of Inbreeding, Linebreeding and Crossbreeding in Mice, Mule Power vs. Tractor Power, Poultry Diseases, Pasture Rotation and Sanitation and Calf Feeding, and Winter Rations for Cattle.

FIRST 10 YEARS OF CAMPAIGN GREATLY REDUCES BOVINE TB

Ten years ago, soon after he had taken charge of the Tuberculosis Eradication Division of the United States Department of Agriculture, the late Dr. J. A. Kiernan made the significant and prophetic statement that "tuberculosis can be eradicated from all the cattle and all the swine in the United States."

At that time official testing showed that 4.9 per cent of the cattle were infected with tuberculosis, and figures on 40,000,000 hogs slaughtered under the Federal inspection indicated that 10 per cent of all the swine in the United States were infected.

At the close of 1927 the same sources of information indicated that tuberculosis in cattle had decreased to 2.9 per cent infection, and that although the disease in swine had increased from 10 per cent in 1917 to 15.2 per cent in 1924 it has gradually been decreasing since that time and at the close of 1927 was 13.5 per cent.

There are now 401 counties, or 13 per cent of the entire number in the United States, classed as modified accredited areas because they have less than one-half of 1 per cent infection in cattle. In addition to these free counties there are 627 others engaged in the work looking to modification. This total of 1,028 counties, either modified or working to that end constitutes one-third of the total number of counties in the United States. A total of 18,610,865 head of cattle are now under supervision for the eradication of tuberculosis.

It is apparent, that the prophecy made in 1917 relative to the possibility of controlling and eradicating this disease is being borne out.

ATTACKS MEAT SITUATION ASKING FOR VETERINARIAN

Renewing his attack on the sale of beef slaughter here without inspection, as a menace to the health of the community, Dr. John H. Collins, public health commissioner, has asked an appropriation for a municipal veterinarian. The request was embodied in the commissioner's annual report just filed with Mayor Fagal.

Of this condition, Dr. Collins says: "I have on several occasions petitioned the dispensing board for funds with which to procure the services of a veterinary, whose duty it would be to inspect animals that are to be slaughtered for meat consumption in the city. Such petition has met with no results so that for the past two years, I have not included it in my budget.

"When you know that all meat shipped into the city bears the stamp of the federal government as evidence of inspection then you realize how inconsistent it is that any animal in the vicinity of Schenectady may be killed here and offered for sale regardless of its condition.

"I have no hesitancy in saying that if the Schenectady public knew the kind of animals killed here, which go to furnish meat for their tables in many instances, they would rise up en masse and demand a veterinarian to inspect all such products.

"Since the health of the inhabitants is the most valuable asset of a community, a more liberal health budget would be money well invested."—*Schenectady* (N. Y.) *Star*.

MANITOBA VETERINARIANS WANT LARGE SHARE IN OFFICIAL TUBERCULIN TESTING

The annual meeting of the Manitoba Veterinary Association was held on February 10th, 1928, at the Royal Alexandra Hotel, Winnipeg.

About fifty members were in attendance, the chair being taken by the president, Dr. J. B. Still, Winnipeg.

The secretary-treasurer's report showed one hundred and fifteen active members and eight honorary members, while the balance sheet showed a balance standing to the credit of the association at the end of the year of $715.55.

The following officers were elected for the ensuing year:

President, Dr. W. A. Shoults, Winnipeg; vice-president, Dr. Owen McGuirk, Dauphin; secretary-treasurer and registrar, Dr. William Hilton, Winnipeg.

Council: Dr. J. B. Still, Winnipeg; Dr. A. L. Alton, Portage la Prairie; Dr. J. R. Fisher, Brandon; Dr. Owen McGuirk, Dauphin; Dr. W. Hilton, Winnipeg; Dr. W. A. Shoults, Winnipeg, and Dr. H. H. Ross, Brandon.

Examining board: Doctors J. B. Still, A. L. Alton, and H. H. Ross.

Auditors: Doctors M. T. Lewis and T. G. Sprague.

Dr. J. A. Stevenson, of Winnipeg, and Dr. S.

Robinson, of Victoria, B. C., were elected honorary members of the association.

In view of the success of the summer clinics held during the past two years, it was decided to hold a clinic this coming summer at Portage la Prairie.

The question of the practising veterinarians being given a larger share in the work of tuberculin testing being carried out under the policies of the Dominion Government, Health of Animals Branch, on passing a special examination as to their qualifications for such work, was discussed, and a committtee was appointed to wait upon the provincial government and elicit their assistance in pressing this matter on the dominion government.

The following addresses and papers were delivered at the afternoon session: Safeguarding the Public Milk Supply, by W. A. Shoults, Provincial Board of Health; The Use of the Stomach Tube, by H. R. McEwen, Stonewall; The Importance of Increasing Sheep Production, by A. L. Alton, Portage la Prairie; Losses Occurring Among Young Pigs, by T. G. Sprague, Health of Animals Branch, Winnipeg; Hemorrhagic Septicemia; Its Clinical Significance in Manitoba, by M. T. Lewis, Stonewall; Operations Performed at 1927 Summer Clinic and Observations on Same," by H. H. Ross and J. R. Fisher; The Present Condition of Live Stock Industry of the Province and the Part the Veterinary Surgeon Could Take in Promoting More and Better Live Stock, by Mr. J. H. Evans, deputy minister of agriculture.

MISSOURI VETERINARY SHORT COURSE

The veterinary short course, January 24-27, 1928, at the University of Missouri, conducted cooperatively by the university and the state veterinary association, was a splendid success in point of attendance, interest and excellence of the program. The attendance included 90 per cent of the membership of the association; the responsiveness of those present was indicated by the receipt of about 30 applications for membership in the American Veterinary Medical Association, following an address on the association by President Hilty.

An air of sadness prevaded all sessions owing to the dangerous condition of J. W. Connaway, nestor of the profession in Missouri and chief promoter of the short course. Doctor Connaway was stricken with influenza a few days before the opening of the short course, and developed pneumonia. His condition was extremely serious during the meeting, his physicians withholding any prognosis. On the last day of the sessions, all were encouraged by a report of improvement and hope of recovery held out by the hospital authorities. Doctor Connaway has continued to make slow progress, but is still, after six weeks, unable to leave the hospital. His recovery seems assured.

In addition to Doctor Hilty's discussions, contributions to the program of unusual value were made by T. A. Sigler of Indiana, R. R. Dykstra of Kansas, and A. T. Kinsley. Doctor Sigler's and Doctor Dykstra's papers were published in the March issue of Veterinary Medicine.

The clinic provided by the veterinary faculty of the university was varied and instructive. Drs. Sigler and Dykstra officiated as chief surgeons, and others took part. Doctor Dykstra demonstrated fully the use of epidural (Benesch) anesthesia and Dr. Emil Benedicto of Kansas City demonstrated a means of restraint employed in Cuba for cattle. It consists in bending the tail sharply and forcibly upwards, as the "kink" occurs at the point of injecting the local anesthetic for epidural anesthesia, the opinion was expressed that possibly pressure on the nerves at that point acted in a measure to decrease sensation as does the anesthetic. Doctor Benedicto, however, regards the action as analogous to the effect of a twitch on a horse.

The next meeting of the Missouri Veterinary Medical Association will be held in Midsummer at Neosho.

MERILLAT URGES ELIGIBLE VETERINARIANS TO JOIN THE VETERINARY RESERVE

At the Veterinary Conference at the University of Illinois, February 13-14, Lieut. Col. L. A. Merillat, Evanston, took occasion during the Horse Show given by the R. O. T. C., at the University, to address the conference on the subject of the veterinary reserve corps of the U. S. Army.

Col. Merillat deplored the fact that most other professions have made a better showing in their respective Reserves than has the veterinary profession. He stated that it was his belief that the poor showing made by the veterinary profession was not owing to lack of loyalty or patriotism, although it appeared to the general public to be due to this. He said Cook County veterinarians were well represented in the Reserve but that for some reason not understood, down state veterinarians in Illinois were scarcely represented in the Reserve at all.

Every veterinarian eligible to be commissioned in the Reserve, the speaker stated, should align himself with it as a duty to his country, to his profession and to himself. He called on half a dozen veterinary reserve officers from Chicago for an expression of opinion and all responded that their experiences in the Reserve had been pleasant and interesting, and all expressed a high appreciation of their commissions.

In addition to a discussion by members of the faculty of the University and by veterinarians and breeders of Illinois, the program included papers by Reuben Hilty, president of the American Veterinary Medical Association; H. K. Wright of Philadelphia; R. R. Dykstra of Kansas; and F. B. Hadley of Wisconsin. Doctor Dykstra's paper was published in Veterinary Medicine last month, and Doctor Hadley's paper appears elsewhere in this issue.

The attendance was large and the program highly instructive.

MATTERS OF CURRENT INTEREST

C. J. Wilson, has located for practice at Siloam Springs, Ark.

B. C. McClintock has located for practice at Huntington Park, Calif.

E. M. Redden, formerly of Pierce, has located for practice at Norfolk, Nebr.

E. C. Redden, formerly of Ruleville, has located for practice at Drew, Miss.

T. P. Skinner, formerly of White Cloud, has located for practice in Highland, Kans.

H. S. Van Vranken, formerly of Story City, has located for practice at Burt, Iowa.

H. R. Kidder has just occupied a new $3,500 veterinary hospital, his own building, in Ponca City, Okla.

The Kansas Veterinary Medical Association at its annual meeting in Wichita, Jan. 4-5, increased the salary of its secretary from $50 to $150 a year. Chas. W. Bower of Topeka was reelected secretary.

B. L. Lake has resigned his position as county veterinarian of Whiteside County, Illinois, which he has held for five years, to accept a similar position in Warren County, with headquarters at Monmouth.

E. C. Tunnicliff of the Animal Pathology Department of the University of Illinois has resigned to accept a position on the staff of the Sonora Texas Experiment Station. Doctor Tunnicliff will succeed Dr. H. L. Black, resigned, and will be engaged in research work.

T. P. Gallahue, Monmouth, Illinois, has been appointed county veterinarian of Lake County, with headquarters at Waukegan. The position carries a salary of $4,100 a year. Doctor Gallahue had served as county veterinarian for Warren County, Illinois, four years when he resigned to accept the Lake County position. He succeeds Darwin C. Grinnell.

At its recent annual meeting in Columbus the Ohio Veterinary Medical Association voted to assist the state authorities in the enforcement of the state veterinary practice act; authorizing the employment of counsel for this purpose. The action was taken with a view to eliminating unlicensed practitioners from the state for the protection of the live stock industry of the state.

A merchants association in San Francisco has protested to the health committee of the Board of Supervisors against the erection of a dog and cat hospital on a boulevard.

The city commissioners of Fort Scott, Kansas, have enacted an ordinance prohibiting the maintenance of a veterinary hospital within 100 feet of any residence within the city limits. The rule was adopted at the instance of the mayor who presented a petition with a large number of signatures asking that such action be taken by the commissioners.

Dr. J. F. DeVine, the versatile practitioner of Goshen, New York, and nationally recognized authority on cattle practice, unlike the prophet of old, is not without honor in his own bailiwick. At present, he is president of the State Horse Breeders' Association, president of the New York Draft Horse Club and vice-president of the New York State Jersey Cattle Club.

CHANGES IN ARMY VETERINARY SERVICE

Regular Army

The promotion of the following-named officers is announced: Lt. Col. Wm. P. Hill to colonel, February 4, 1928. 2nd Lt. E. E. Hodgson to 1st Lieut. February 2, 1928.

Major George H. Koon is detailed, in addition to his other duties, as attending veterinarian, U. S. Disciplinary Barracks, Ft. Leavenworth, Kas.

Captain John R. Ludwig is relieved from duty at Fort Lewis, Wash., and will proceed at the proper time to San Francisco, Calif., and sail on the transport scheduled to leave that port on or about April 24, 1928, for New York City, and will then proceed to Fort Monroe, Va., for duty.

Reserve Corps

New acceptances:

Reed, Paul H., 1st Lt., 1101 Westlake Ave., Seattle, Wash.

Hannemann, W. H., 2nd Lt., 2619 Everett Ave., Kansas City, Kas.

Hiett, Allen A., 2nd Lt., 311 11th St., Sioux City, Ia.

Nugent, Wm. Kemp, 2nd Lt., 3314 Powelton Ave., Philadelphia, Pa.

Grootes, M., Capt., 209 N. Washington St., Twin Falls, Idaho.

Promotions:

Bowers, Joseph M., 1st Lt., 411 Lucerne St., Bellevue, Pa.

Separations:

Byler, Carlos Clifford, 2nd Lt., Died.

Howard, Paul V., 2nd Lt., Failed to accept reappointment.

Owen, Harry H., 2nd Lt., Failed to accept reappointment.

Kaliher, Vernon M., 2nd Lt., Declined reappointment.